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☞ *The stars (*) in the following Index show where engravings occur. Articles referring directly or indirectly to Cattle, Horses, Fertilizers, Flowers, Fowls, Poultry, Insects, Plants, Weeds, etc., will be found indexed under these general heads.*

A

Adobes as a Building Material*..411
Agriculture, Friends of.....312
Allen, A. B., Visit to.....509
Animal Ailments, 55-148-204-248-288-324-370-414-510-554.
Animals, Farm, Feeding and Care of, 47-328-*360-*405-495-*542.
Ants, Pyrethrum for.....430
Apiary, The, 52-97-151-*196-*242*281-*320-*364-*408-*493-*527.
Apple-barrel War.....393
Apples, Do, Hurt Cows? 533—Exportation of, 534—for Exportation, 366—Keeping Early, 325—Keeping in Winter, 22—Russian, 59—Stored in Pits, 405.
Apricot, The.....*.. 66
Arts, Manual in Farming..... 49
Ash, Mountain, Berries..... 23
Ashes, Coal and Muck for Evergreens, 33 — and Manure, 544—How to Keep, 15.
Asparagus, Bunching.....*.. 34
Axe, Fence Post..*..306

B

Back-Yard, The.....105
Bacteria, What Are?.....*.. 61
Barberries, Evergreen.....*..115
Barn, $800, *293—Adobe, 15—Cattle Hillside, *156—Florida, *410—Medium-sized, *203—Remodelled *43-*95—Small, *253—Small, $945, *4.
Barn, Flooring.....*.. 18
Barn-yard Economy..... 62
Barrel Coops.....*..100
Barrow, A Barrel.....374
Barrow, for Stable Bedding..*.. 12
Bars, Sliding Support for.....*.. 7
Baskets, Fruit and Flower....*..378
Baskets, Hanging..... 547
Bath, The Dust.....362
Beans, Castor Oil, 205-325—Horse, English,*212—Lima,100-249—Some, 252.
Bed, Seed, for Forest Trees. *..202
Beef, Slaughtered, Elevating a... 5
Beets, Early and Late.....284
Berry-patch, The.....163
Birch, White, The*.. 56
Bird, Destructive Farm..... 112
Birds, Encourage the.....240
Birds, English Sparrows 509
Blackberries, "Early Cluster," "Wilson Junior,".....*..22
Blackberries, New.....*..212
Blackberry, An Evergreen.....205
Blackberry in Summer, The.....292
Blessing, Questionable, A.....104
Bones on the Farm.....239
Bones, Reducing..... 360
Book Farmers 406
Books, 248-274-314-351-392-519.
Box, Nest for Hens,*51—Mailing, for Plants, 490—Tool, Portable, 247—Wagon, *52.
Boxes, Nest, Hanging.....247
Boxes, Transplanting..... * .163

BOYS' AND GIRLS' COLUMNS.

A Apples, Which is the Top *218—
B Birds, Some Interesting, *263—Boarders, My, Do You Know? 427—Boating and Canoeing, *507—"Buck, Buck, How Many
C Horns?" *72—Camelopard, Mr. Dyekman's, 219 — Chimpanzee, The, *119—Christmas Surprises, 550—Corals not Insects, *219—
D Crow, Our Tame, 170—Day, St. Valentine's, 70 — Deer, Horn Shedding, *28—
Doctor's Talks:—Aurora Borealis, 70—Bees, Bumble, English, *302—Chicks, Hatching of, *169--Clams, * 428 — Country, The Proper Outfit for the, 217— Diamond Stones, 384—Dogwood, Flowering, The, *217—Egg-hatching in Incubator, *343—Eggs, Hatching of, 169—Flies, *508—Flower, Barberry, *217—Incubator, The, 196—July, Fourth of, Preparations, 263—Knot-tying,*70—"Monkey's Bread," *302 — Moth, Death's Head, How Known, *302—Mucilage and Paste, 120—Mussel, Fresh Water, *383 — Plant, a Weed or Not, 262—Plants, Common, Worth Examining, 218—Plants, Observe, 169—Scorpions, *28—Shrimps, What Are? *427—"Sleight of Hand,"*550—Sponge, A Vegetable or Animal, *120—Toads, Tree, or Tree Frogs, *344 Weed List, Prizes, 120-262—Weed Lists, Whole Number of, 262.
E Eyes Sometimes Deceive Us, *28
G Games for Winter Evenings, 27
H Head, Body, and Legs, *28—Headdress, A Living, *506—Hen, and Quails, 218—Hunger the Best
K Cook, 28—Kangaroo, Rock, The,
L *550—Letter, Dakota Boy's, 428
M —Musician, The Young, *.70—
P Pencil, Can You Talk With the, 303 — Poultry-keeping, A Boy's, 213—Puzzle, Old, Improved, *550
R —Rebus, 119-169-218-262-344-427-506-509-551-553.
Stories:—Snake-Charming, *334—A Red-Letter Day, 507—A Western Boy's Adventure, *26—An Adventure with Bruin, *342—An Amateur May-party, 216 — An Unexpected Journey, *301—At the Ferry, *382—Caught in the Battle, *426—Frogs, by Day and Night, *508—How Lady Bird and the Boys Kept Washington's Birthday, *71 — How Tommy Celebrated the First of April, *168—Jack, the Bridge-mouse, 332—Kittie's Lesson, *216—Many a Slip 'twixt the Claw and the Lip, *303 — More than Strawberries and Cream, *261—Out of the Waters, *118—Wiug Foo's Christmas Tree, *551.
T Toads, Tree, 344—Toboggan, How to Make, *70—Tree, Banyan, The, *219—Tree, Mangrove, *27—
W Wedding, Floral, 344 — Weed Lists, About the, 218—Wolves, Among *120.
Boys Taught to Use Tools.....153
Brake, Wagon, A.....*..208
Brake, Wagon, Automatic.....*..49
Breeding Horses.....335
Breeds, Beef, the Best.....335
Broccoli, Branching, The.....*..257
Brooder, Chicken, A..... 63
Bucket, Bored-well, A*..336
Buckwheat as a Farm Crop.....372
Bulbs, Fall or Holland.....423
Bulbs, Plant Early..... 377
Butchering, Home..... 16
Butter, Bogus.....202
Butter Fat.....111

C

Cabbage, Savoy.....181
Cabbages and Club Foot.....289
Cabbages as a Farm Crop.....279
Calves. *See Cattle.*
Canaries, The Old and New in*..488
Cardoon, What Is?.....*..165
Carp and Dueks.....205
Carp as a Food Fish..... 11
Cart, A Liquid Manure.....366
Carrots, Wild.....529
Cattle—Angus Cows, *435—Ayrshire Tests, 210 — British Shorthorns, * 101 — Bulls, Vicious, Head-gear, * 197—Calves, Moose in, 21—Cow, Fine Milch, A, *305 — Cow, in Midsummer, The, 281—Cow, Wild, Catching, A, 249 — Cows, Butter Testing of, 410 — Cows, Prolong the Milking Season of, 241 — Cows, Shorthorn, * 500 — Switch, Confining, 108—Cattle, Connecticut Red, * 541—Diseases in the West, 392 — Feeding, 99—for the South, 335—Guernsey, *321 —Holland, 411—Holstein, 365—Manger, *420—Keeping in the West, 374—Preventing from Browsing, *11—"Cattle Pull," The, 8—Tie for,*542—Western, The Disease in, 202.
Cats on the Farm. 328
Cedar of Lebanon.....*..115
Cedar, White, California, The*..345
Celeriac, What is?..... 159
Celery, Blanching with Tiles,*367—New, A, * 319 — Should Farmers Grow? 338—Why Blanch? 205.
Cellar, Above-ground, An....*..147
Cellar, Above-ground of Bricks, *375.
Cellars, Above-ground..... 11
Charcoal, Making.....107
Chat with Readers for Jan., 15—Feb., 59—March, 107 — April, 159—May, 205—June, 249—July, 289 Aug., 325—Sept., 371 — Oct., 430—Nov., 511—Dec. 554.
Cherries and Robins.....325
Cherries, No, but Abundant Bloom, 511.
Cherry, A New.....*..367
Cherry Tree, Trouble with.....205
Chestnuts, Burless.....501
Chestnuts for Planting.....289
Chickens in the Garden.....209
Chick-pea, The.....*..66
Cholera, Make Ready for the... 445
Cider-making Without Press.....244
Cions, The Time to Cut 15
Cistern, Connecting Old and New, *153.
Cistern, Dimensions of.....111
Cloth in Place of Glass.....511
Clover Crop, The.....239
Cocoonery, Silk-worm, A.....*..323
Colic, Spasmodic.....197
College, Veterinary, American..204
Colleges, Agricultural..... 511
Colts, Bitting.....*..162
Colts, Hints about Breaking.....404
Comfort from Old Newspapers... 57
Compost and Quack..... 15
Conservatory, Window..*.. 65
Contributors, Among Our..... 311
Contributors, List of.....412
Coops, Chicken.....*..105
Coop, Fattening Poultry, ...*..110
Corn, Indian, Change in Color, 67—Hybridized, How is? 107 — Indian, 64—Preparing Ground for, 97—What is a Bushel? 492.
Corn-field and Corn.....361
Corn-fodder, Do Not Stack.....372
Corn-house and Granary.....*..333
Cotton, Exposition, A... 164
"Cotton" of the Cottonwood....371
Cranberry Culture 430
Cranberry Culture in Nova Scotia, 107.
Cream Turning Blue.....520
Creamery and the Farmer.....246
Crop, Chief of the Country, 10—Feeding Experiments, 419—Ice, The, 49 —Prospects, Talking Over, *9—Turnip, The, 294.
Crops and Stock, Saving, 210—The Cost of, 240—What Gather First, 416—What Do With The, 483.
Cross-bars for Mangers.....*..63
Croup and Its Cure.....446
Crusher, A Clod.....500
Cucumber, A Lasting, 159—For Pickles, 242—Pickling, 371.
Currant Bush, One.....150
Currant Bushes, Trouble with..289-325.
Cuttings, Planting Out.....101
Cuttings, Time to Start.....289
Cypress, Southern, The.....*..256

D

Daikon, The.....*..412
Dairy, California Statistics..... 56
Dairy Questions.....246
Dairying in California..... 48
Dairying, Irish..... 16
Dakota, What Raised in... 536
Decorations, Festive, Suggestions for, 34.
Derrick, A Convenient.....409
Derrick, Boom.....*..529
Dog Law..... 326
Dog, Our.....*..416
Dog, The, Question..... 373
Dogs and Dog Shows.....*..206
Dogs, Our Gallery of.....*509-*553
Domain, The Public..... .. 5
Door, Barn, Fastening.....*.. 99
Double-Tree, Strong, A.....*.. 63
Drag, The.....*..148
Draining, Leveling for.....*..211
Draining, Suggestions.....*..196
Ducks—Duck Houses.....*..110
Dwelling, Old, Improved.....*..148

E

Edgings, Garden, Flower.....258
Eggs, Selling by weight, 211—All in One Basket, 366—Nest, 107—Winter Getting, 153.
"Egyptian Evergreen Millet."..511
Enemy, Farmer's most Active.. 18
Ensilage, Important Discovery..137
Escutcheon, Guenon's..... 59
Evergreens, Broad-leaved..... 535
Evergreens, Pruning.....95-107
Exhibition, Netherlands International, 59.

F

Fairs, Agricultural, 429—Local, Needed, 162—Prepare for the, 364
Farm, Beautifying the, *406—Farm Walks and Talks, 286-334-*363-407-486-532—Farm Work for January, *2—February, *46—March, *94—April, *146—May, *194—June, *238—July, *278—August, *318—September, *358—October, *402—November, *482—December, 526.
Farmers, Among the, 193-242-294-332-374-418-*498-543 — Comforts, 54—Law for, *369-419-490—Liability for Acts of Beasts, 284.
Farm House, A New York.....372
Farming Does Pay, 63—French, 290—in England, *250—in Germany, *496—New Requirements in, 13—Salt-Water, *368—Western, Possibilities in, 57—Wool, Australian, *330.
Farms in New York City.....*..417
Feeding-Box for Cattle or Sheep* 13
Fence Board Holder, *248—Bracing, *151—Building a Stone, *18—Cheap Slat,*19—"Stakes and Riders,*62—Passage-Ways,*487—Picket, A *361.
Fence-Posts, Bracing.....*.. 8
Fences Across Streams, *155—Wire, Gates in, *374—Wire, Passages in, *545.
Fencing, Farm..... ...*..104
Fennec, or Zerda, The.....*..209
Fern, Maiden-Hair, The.....*.. 67
Fertilizer, Fish, Preparing as....249
Fertilizer, Scattering by Hand...540
Figs, The Culture of.....152
Filberts, Cultivation of.....163
Fish and Fruit in Florida..... 50
Fishery Commission, New York*327
Fishing, Seth Green and R. B. Roosevelt, 208.
Flail, Threshing, A.....*..283
Flower Forcing.. 65
Flower Garden and Lawn, for January, 3—February, 47—April, 147—May, 200—June, 238—July, 279—August, 319—September, 359—October, 403—November, 483—December, 527.
Flowers, Everlasting, *165—Bulbs, Hyacinth, 64—Carion, *113—Carnations, New, *115 — Chrysanthemums, Why not More? 23—Crocuses in Grass, 377—Fuchsias, 241—Narcissus, A New, *377—Narcissusses, Old and New, *195—Mulberry, 345 — Pansy, The, *256—Poppy, A New, *422—Spring, Sow Now for, 379—Verbenas, from Seed, 159.
Flues, Watch the.....*..499
Fodder, Coarse, for Sheep.....493
Food, Human, Is Blood fit for? 325
Food, Steamed or Cooked.....197
Forest Commissions.....246
Forest, Rubbish, Clear up the...501
Foundations, Wooden, for Buildings, 414.
Fowls, Bumble Foot in, 372—Diseased, Treating, 490—Fancy Points in, 98—For Winter Laying, 485—Hens Picking Feathers, 335—Houdan, *245—How Many, 59—Improving Common, 15—Langshau, 100—Which the Best? 500.
Frame, Banner Photograph.....,345
Frogs, Help Farmers.....405
Frosts, Late, Destruction by.....209
Fruit, Best Prices for, 203—Harvest, The, 339—House, Dryness, 406—Missouri, 511—Ripening and Decay, 423—Surplus, 345—Without Flowers, *439.
Fungus, Blueberry..... 371

C

"Gambrel" Men Have It.....159
Gambrel, or Gammon, Which?.. 16
Garden, Farm, Starting, 547—Northernmost in the United States, *200—Structures, Various, *296—Thinning, 207.
Gas Tar and Its Uses.....538
Gate, A Lifting, *210—Double-latched, A, *198—Posts, Stone and Iron, *493—Wrought Iron, *55,
Gates, Farm..*..241
Glass, Insulators for Lightning Rods, 289.
Goats in California.....352
Good King Henry.*..212
Gooseberries....*..282
Grafting, Side.....*..195
Grafting, Time for..... 105
Grain, Transportation of.....249
Grain, Grinding and Cooking....539
Granaries, Preparing the.....375
Grape, Niagara, *547—Juice Preserving, 511—Rot, 249.
Grapes, Here and There, 297—The Ives and Others, 520—To Preserve in Winter, *421.
Grape-vine, Buy A, 101—In Summer, 288—Pruning, 163-338.
Grass, A Rare and Useful, *420—Bermuda Seed, 159—For a Name, 325—Hungarian, 33-325—Needle, 430—Orchard, 325—Oregon, 430—Rescue, 205.
Grasses, Bermuda and Johnson, 15—Pasture and Meadow, 254—Valuable, *379.
Greenhouse and Window Plants, For January, 3—February, 47—March, 85—April, 146—May, 200—June, 239—July, 281—August, 319—September, 359—October, 403—November, 483—December, 527.
Greens from the Field..... 96
Grind-Stone Rest, A.....*..198
Grind-Stone, The Farmer's...*..362
Grounds, Irregular.....*..339
Grounds, Small, Laying out of.*..201

H

Hair, Coloring the..... 371
Ham, Keeping through Summer .295
Hand-Cart, A..... 412
Hand-Light, Useful, A.....*..154
Handles, Wheel-Barrow.....*..112
Hares, Sylvan and Northern..*.. 16
Harness Stool and Clamp.....*..211
Hatching, The Time for.....159
Have more things Early.....162
Hat-Rack for Farmers.....*..538
Hay Prepared for Fuel.....*..499
Hay-Twister Wanted.....325
Hedge, Arbor Vitæ, Pruning....205
Hinge and Gate Combined....*..410
Hinge, Wooden Gate..... ..*.. 95
Hinges, Gate, of Wood.....*.. 62
Hints, Helpful.....149
History, A Wonderful.....441
Hoe, Weeding.....*.. 6
Hog Cholera.....205
Hogs, Red..... 110
Holder, Saw, A.....*. 294
Home Pioneer, The Far West....158
Home, Prairie, How I Found My.*.244
Hooks, Hay and Straw.....*..531
Hornbeam and Ironwood... .*.. 23
Horse, English Shire, *285—Physiognomy, *534—Show, National, The, 305.
Horse-Radish.....*..113
Horse-Radish for Market..... 15
Horses, Aprons for, *284—Do Not Gall the, 328—Draft, Sloping Shoulders, *335—Cross-bred, *484—Fine Action in, *287—Shoulders, Sore, 111--When to Shoe, 322.
Horticultural Facts..... 7
Horticulture, Railroad.....289
House, Costing, $3,500, *494—Costing $1,500, 536—Farm, Dakota, *54—For $100, *329.

630.S19
Agr. Ind.

INDEX. III

HOUSEHOLD:
A Articles, Ornamental Household, *505—Awnings for Country
B Dwellings, *299—Bags, Shawl, *299—Bed-room in Cretonne, *340—Beef, Round of Spiced, 381—Block, Sand Paper, 69—Book Covering, Neat, *24—Boot Jack, *167-Boot-Scrapers, Home-made, *24—Box, Coal, 300—Box, Window Garden, *166—Bracket, Corner, *68—Bread, Corn, Virginia, 380—Breakfast Dish, 117—Broom,
C Hanging A, *340—Cabinet, Medicine, Corner, *425—Hanging, 24—Wall, *260—Case, Glove, *25—Cellar Bin, A, *381—Chest, Flour and Meal, *340—Chickens, Fried with Rice, 24—Christmas Cards, 548—Christmas Decoration, *549—Christmas Tree, How Dress? 549—Closet, Combination, *300—Closet Door, with Shelves, *504—Cockroaches and Croton Bugs, *260—Conveniences, Household, 299—Cooking, A Word on, 166—Coughs and colds, 69—Cupboard, Front, *117—Curtain for Stained Glass Window, *424—Curtains, Inexpensive, 117—Cushion, Laun-
D dry, *341—Dress, Hints for, 25—Dress, Notes on Styles of, 259-
E 340—Easel, Home-made, 166—Etiquette, Table, 424—Eyes, The,
F 300—Fashion Notes, 548—Fernery, Home-made, *69—Flower-Stand, Circular, *381—Food, Protecting, *504—Frames, Picture,
H Plush and Satin, *380—Hands, The, 340—Hamper, Clothes, 167—Hints for Busy Fingers, 117—Hints, Home, Clothing, 214—Holder, Ball, *380—For Newspapers, *116—For Whisk Brooms, *214—Home, Attractive, Make Your, 381—House Furnishing, 68—House Furnishing, Taste in, 388—Housekeeper, A Philoso-
J pher, 300—Jardiniere, Table, *424
K —Kindlings in Paper Bags, 117—Kitchen, Plan of, *259—Pleasant, Make the, 215—Knives, Wooden
L Fruit, 25—Lambrequins, Mautel, Catch-Alls, Splashers, 214—Lamp, Night, Stand, *215—Letter Paper and Cards, Fashions, 259—Line, Carving, *69—Lounge, Home-
M made, *68 "Making Over" Things, 116—Match Strike, *24—Mice, Dead fall for, *167—Moth, The Buffalo, 341—Omelet, 259—
O P Panels, Birch Bark, *549—Panels, Satin, *25—Parents, A Word to, 341—Piano Scarf, *548—Pickles, How to Make, 424—Plant Stand, *116—Potatoes, A Chapter on, 215—Presents, Wedding, Begin-
R ning Housekeeping, 299—Pudding, Apple, 24—Rag Carpet, Hints, 167—Receiver, Photograph, *424—Scrap, *380—Refrigerator, Home-made, *214-Rooms,
S Sleeping, Our, 425—Salads, Their Healthfulness, 425—Sally Lunn, 25—Screen, Curtain, for Doors, *214—Screen, Wash Stand, *299—Seats, Out-Doors, *215—Secretary, Home-made, *548—Sharpener, Lead Pencil, 341—Shelves, Hanging, 341—Shoe-case, and Linen-Bag, *425—Sick, Catering for the, 505—Slipper Case, Ornamented, *518—Smoke-house, A, *381—Spring, Hints for, 116—Staud, Coruer, *381—Starch and Iron, How to, 24—Styles, Autumn, 504—Syrup, Lemon, 548—
T Table-Cover, Inexpensive, *549—Table Decorations, *166—Home-made Toilet, *117—Tables, Drop-Leaf, *68—Tech, Care of the, 167 "Twine-Work," Lamp-Shades
W and Flowers, 116—Wash-Stands, Old, Use for, 380—Well Waste, 300—Window Drip, A Catch for, *167—Work, Mid-Summer, *341—
Y Yard, Back, The, 260.
Houstonia, The 195
Huckleberries*..114

HUMBUGS:
Agency, Union Detective, 39—Agents, Pension Claim, 435—Album, Postal Card, 435—Auctions,
B Furniture, 273—Bunco Steerers, 39—Bee Hive, Golden, 391—Benefactors of the Human Race, 179—Blacksmith, Village, 227—Blind Leading the Blind, 39—Book-keeping for Fifteen Dollars, 80—Books, Pernicious, 131—Brahmo Yan, 351—Bribes Offered, 351—Bureau, Matrimonial, 179—
C Cash Paid for Stories, 391—Cattle, Car Load of, 180—Chickens Counted Before Hatched, 351—Clairvoyants and the Like, 517—Companies, Land, 351—Company, Jewelry Standard, 391—Company, New York Book, 517—Contrivance, An Ancient, 517—Corpse, His Father's, 80—Corresponding With Strangers, 517—Cure, Hindoo, Deafness, 131—
D Deafness, Cure, 311—Disgrace to the Town, 351—Dogs, Chesa-
E peake Bay, 80—Eggs, Preserving, 391—Enterprises, Grain and Cattle, 80—Express Charge Gift,
F 131—Fiend, Counterfeit Money, 179—Fight, An Unequal, 131—Fight it in the Courts, 311—Flemming & Merriman, 131—Flowers, Everlasting, 180—"Foolcrop, The," 435—Fraud at Breakfast Table, 273—"Fund W," The
G End of, 39—"Graphs," The Various, 273—"Grass, Drouth-Proof," 391—Grass for a Name, 131—"Great American Propaganda Society," 517—Girdle, Galvanic,
H 131—Hair, Superfluous, 39—Hog
I Cholera, Sure Cure, 80—I Think it a Humbug, 80—Indicators, Metal, 311—Indignant at the Application, 351—Insurance, Life, 179—Invigorator, Fruit Tree, 131
J -311—Journals, Agricultural Bogus, 179—Justice on Their Track,
K 179—"K & K," The, 311—"Lock
L of Hair" not Required, 351—Lotteries, Here and There, 39—Lotteries, Royal and Others, 227—Lottery, Martin Meyer, 273—Lottery, New Brunswick, 131—
M Magnetic Appliances, 273—Man, Young, Wanted, 80—Mesmerism Did It, 391—Mining Enterprise, 273—Money, Bogus, Offered, 351—Counterfeit, 179—Counterfeit, Swindle, 80—Mutual Self En-
F dowment, 311—Nasturtium, 180—Newspaper with Annex, 273—
O Orchard, Apple, 180—Parent, an
P Indignant, 131—Particulars, He Wants, 517—Payments, Advertising, 391—Peddlers, Tree, 227—Pension Matters, 80—Petroleum vs. Stock Gambling, 435—Photographs, Coloring, 227—Plum, A Wonderful, 80—Police, Chief Says, 179—Policy Playing, 391—Postmasters, How Tempted, 39—Press, The Interior Associated, 517—Prize, nor Paper, Neither, 435—Publisher Turns Banker,
R 131—Ranch, Spotted Pony, 351—Recipe, Preserving, 227—Recipes,
S Free, 273-351—Scoundrels to the Back-bone, 179—Seed, Swindles, 227—Sprats to Catch Herring, 39—Stock Raising in Texas, 273—"Storm Glasses," So-called, 39
T —Tiffany & Co.'s End, 131—Toll-gate Opens Again, 435—Tree Bean of Mexico, 39—Tree Fruit, Wonderful, 273—Turn, New, to
W Old Tune, 435—Ware, Silver, Boston, 311—Work Appreciated, Our, 435.
Hurdle, A Rack.....*.. 13
Hydrangeas, Blue.....540

I

Ice-house, Building an.....495
Implement for Squaring Fields.162
Implements, Farm, New.....*..274
Improvement, Where to Look for 483
Incubators, Home-made.....4
Insect-Borer, Quince.....249—Enemy, *103—Trouble in Grape Canes, 159.
Insecticides, Valuable.....421
Insects—Beetle Asparagus, 159—Cabbage Fly, *337—Cabbage Worm Destroyer, *378—Cabbage Worms, Hot Water for, 16—Cockroaches, Remedy for, 511—Corn Worm, 396—Cottonwood Beetle, *406—Cut Worms, 325—Grape Seed, The, 56—Lady-Birds, *337—Leaf Rollers, 418—Maggots, Cabbage, 249—Ox Bot-Fly, *193—Ox Gad Fly, *120—Peach Tree Borer, 59—Red Ants, 325—Scale on the Oleander, 159—Squash Bugs, 289—Worm, Apple, 279—Ticks, *306—Turnip Fly, 305—Wheat Straw, *531—Wheat Weevil, 371—Wire Worms, *292—Worm, Fall, Army, *531—Worm, Small, in the Greenhouse, 159.
Inventions, Agricultural, *73-*74-*121—*122-*171-*172-*200-*264-*304-*376.
Ivy and Other Climbers.....113
Ivy, Growing and Training.....549

J

Jay-Eye-See.....*..404

K

Kale, A New Curled.....*..164
Kerosene to Kill Insects.....114
"Kill-Calf".....*..22-153
Kitchen Garden for January, 3—February, 46—March, 95—April, 147—May, 195—June, 239—July, 279—August, 319—September, 359—October, 403—November, 483—December, 527.
Knife, Grafting, A.....*.. 95

L

Ladder, Cheap.....*.. 47
Ladder, Fruit.....*..359
Ladders, Dangerous.....*.. 52
Lamb-Kill, More About.....306
Lambs, Early for the Butcher..372
Land, Grass, Salt Upon, 159—Renting on Shares, 535—Meadow, Autumn Care of, 364.
Lard, Rendering.....16
Latch for Barn Door.....*..151
Lawn Making.....*..362
Lawn, The.....103
Leaf, Gatherer, A.....*..306
Leaves, Forest, 520—Gather the, 20—of Trees, Variation in, 338—Rose, What Cuts, *379.
Lemons and Limes, California..282
Lettuce, Mildew.....257
Life, Southern Plantation....*..108
Light in Barn.....55
Light in Winter Quarters.....542
Lightning and Lightning Rods, 157—Lightning Rods, 289—How to Make, 204.
Lignite, A Deposit of.....325
Lime for Blasting.....19
Lime or Ashes with Guano.....289
Live Stock Notes for January, 2—February, 46—March, 94—April, 146—May, *194—June, 238—July, 278—August, 318—September, 358—October, 402—November, 482—December, 526.
Lottery in Agricultural Journals.132
Louisiana Purchase, The.....152
Lumbering in California.....198

M

Machine for Measuring Distances 15
Machine Mowing, Horse Power.*.199
"Make a Note On't".....34
Manure for Potatoes, 533—Heap, The, 107—Hen, How to Use, 59—Leaves as, 107—Making Straw into, 249.
Manuring, Heavy in Gardens....165
Marker, Ground, Convenient.*.. 47
Measure, Half-Bushel.....53
Measure, Land, A.....284
Measuring-Rod, A Sliding....*..364
Melon Vines, Trouble With, 371—Fail to Raise, 110—For Market, 320.
Meteorology, Errors in.....150
Milk, Butter, and Beef.....*..385
Milk-Fever, How to Prevent....528
Milking Tubes.....269
Money-crop for Next Spring....329
Moon, Harvest, The.....*..318
Moss Peat, A New Use for.....405
Mullein, Afraid of.....107
Mule Raising—A New Departure, *528.
Mutton and Milk.....*..531
Mushroom Growing.....420

N

Names, Hard on.....65
Nests for Sitting Hens.....*..153
News, The Origin of.....345
Nitrate of Soda.....546

NOTES, EDITORIAL.
Antelope, My First, 58—Bill, Arkansas, Dies, 15—Boom, Emigration, No, 386—What Makes a, 14—
C Building Rail Road, 58—Cars, Palace, A New Model, 15—Cattle Raising, Profits, 429—Chickens, Prairie, Abundant, 386—Coming Back, 58—Comparisons Interesting, 59—Credit, Take Care of
D Your, 15—Dakota Towns, Rapid
E Growth, 512—Emigration to Ore-
F gon, 430—Farming versus Mining, 58—Figures, Striking, 59—Fish, Big, Swallows Little Fish, 429—Flies, Sand, 429—Formations, Wonderful, 58—Grand
G Army of Republic, 429—Growth,
H Rapid, 430—Hands Up, and Getting the Drop, 14—Harvests, Abundant, 386—Hints, Traveling, 429—Icelanders in America, 15—Implements, Farm, Too
I Many, 386—Industry, New, in
L Oregon, 430—Land Free, Too Much, 386—Lumbermen, Among
M the, 14—Miles, One Hundred and Twenty Thousand, 59—Mississippi, On the, 14—Miles are at a
N Premium, 106—No Doctors Need
O Apply, 106—On to the Front, 106
P —Pierre versus Pierre, 15—
Q Quick-sands, Treacherous, 14—
R Ranches, Cattle, Consolidating, 106—Western, 106—Romance and
S Reality, 106—Scenes, Rapid Transformation, 58—School Privileges, 429—Settlers, Few Returning, 386—Shooting from Train, 14—Stacks by the Million,
W 14—Waiting for Country to Catch Up, 386.
Notes from the Pines, *298-336-*422-*489.
Nuts, Pecan, and Almonds.....289
Nut, The Pecan.....339-370-*546

O

Oleomargarine, How Can, be Detected? 205.
Onion, Question, An.....59
Onion, Seed Raising.....410
Onions, Cultivation of, 547—Harvesting and Storing, 298—Keeping, 488.
Osage Orange Seeds.....511
Orchard and Fruit Garden for Jan., 3—Feb., 47—March, 94—April, 146—May, 191—June, 239—July, 279—Aug., 319—Sept., 359—Oct., 403—Nov., 483—Dec., 527.
Orchard and Nursery, Care of..403
Orchard, Unfruitful.....430
Orchards, Legal Protection for..430

P

Pads, Shoulder.....247
Paint, Fire-proof.....371
Parasites, Animal.....205
Parsnip, A Good Word for the...257
Parsnips, Bushel Weight of...205
Parks—Crotona.....*..535
Pasture, A Convenient.....199
Pasture, Fifty Acres of.....59
Patents, and Patent Laws.....283
Pea-vines, Tall.....208
Peach, Orchard Crops.....159
Peaches from Florida.....325
Peaches, Northwest Wind Kills..410
Peanut Planting, Mode of.....210
Peanuts, About.....205
Pear, Bartlett, 370—Blight, 281—New Seedling, 534—Ripening, 430—The Keifer Hybrid, 10.
Pears, The Oriental.....*..501
Peas, Eatable Podded.....*..152-245
Pen, Swine Feeding, *416—Convenient Corn, 19—Pasture, Movable, *110.
People, City, as Farmers.....249
Phosphates, North Carolina.....235
Pigeon Breeding.....*..414
Pigeons and Pigeon Houses...*.. 7
Pig as a Plowman, The, 385—Feeding, Profit, 112—Pen, A, *254—Raising, 249.
Piggery, Complete, A.....*..111
Piggery, A Prize.....*..316
Pigs, Early Spring, 413—Feeding of, 19—Weaning Young, *361—Warm, to Keep, *528—Yorkshire, *413—Young, Wintering, 487.
Pioneer's Rotation of Crops.....352
Plant, for a Name, A, 511—Fish Destroying, A, *512—Snow, of Sierra Nevada, *336—Stand, Home-made, *545.
Planting, Fall, 377—Ornamental, 115—213—Prairie Tree, 64.
Plants, Abutilon Snowball, 23—Artillery, *377—as Air Purifiers, 345—Camellias, 537—Chrysanthemums, *533—Cockleburr, *361—Floral Chenille, *337—Forwarding, *65—House, Growing in Moss, 298—Propagating, 99—Keeping in Winter, 22—Laurel, The Great, 209—The Narrow-leaved, *243—Liver-leaf, *257—Night-blooming Cereus, 377—Rare Obolaria, *345—Related to Health, 503—Sweet Potato, 59—Watering, 502—Window Culture, 538—Wintering in Cellars, *421.
Plaster, Land, Value of.....33
Plow, Carriage for.....*..210
Plow, Plank, A.....326
Plum, A New.....*..412
Plums, Trouble with.....325
Pollen, The Influence of.....366
Pond Carp, Screen for.....289
Pork, Putting Down.....16
Potash Ley, Use of.....59
Potato and Seed Tubes.....*..155
Potato, "Beauty of Hebron," 159—Experiments Differ, Why? 285—New, A, 65.
Potatoes, Digging Early, 372—Early, 104—How Managed, 205—Mix in Hill, 378—New Varieties, 102—Save the, 336—Sweet, in Northern Gardens, 247.
Poultry—Breeds for Laying, 197—Capons, Why? 528—Chicken Cholera, Prevent, 406—Chicken Raising, 294—Fence, *57—Gapes in Chickens and Turkeys, 289—Green Food for, 541—Hens, Egg-Eating, *322—Hens, A Ration for, 529—House, Heating, 59—House Plans, *64-*150—House Ready for Winter, 500—House, Roof for, 107—House, Small, *246—Keeping as a Business, 245—Roosts, Summer, 294—Shells for, 107-205—Suggestions, 148-*253—Yard Conveniences, *50—Yard, Large, 156.
Prairie Pests.....153
Prizes Offered.....47
Products, Finished,.....533
Pruning in Pear Orchard.....258
Pumpkin, Give a Chance.....503
Pumpkin, Growing with Corn....210
Puzzle, Evergreen.....159

Q

Quince, Meech's Prolific.....*..328

R

Rabbits and Young Trees, 511—in Australia, *490—Troubled with, 15.
Rack, Sheep, A.....51
Rainfall and Grains.....364
Rainfall, Increase in West.....306
Raisin Making.....66
Ram, Hydraulic.....393
Ramie, Something New in.....392
Raspberry—The "Hansell.".*..164
Raspberry, The "Rancocas.".*..502
Raspberries, Trouble with.....371
Rats in Poultry Houses.....435
Rats, To Drive Away.....157
Readers, To Our.....269
Refrigerator, A Creamery.....*.. 19
Refuse, Slaughter-house, Utilizing 59
Rhubarb, Asparagus, Forcing.... 34
Road-building, Good and Bad.* 419
Road, The Law of the.....201
Road Wash, Saving The.....152
Roofs, Thatching with Straw....359
Root-grafting of Shrubs.....*..105
Roots, The Power of.....16
Rose, Trouble with.....249
Roses Produced Cheaply.....*..154
Row Planting.....*..163
Rubber, Dissolving and Mending Boots, 8.
Rush, The Zebra.....*..376
Rust, Getting out of.....155
Rye for Hay.....159-242

S

Saddle, Bare-back versus Blanket, *187.
Salads are Good.....446
Salamander, The European...*..209
Salmon, Fresh, from Oregon.....214
Salt in Orchard.....249
Sashes, Hot-bed.....*..65
Sausage, Home-made.....*.. 49
Sausage, Making.....16
Saw, Old, Cutting Weeds.....*..95
Saw-dust and Leather Scraps.....430
Saw-dust as Bedding and Manure 205
Saw-horse, Cheap, Good.....* 6
Scaffolding, Portable.....*..100
Scare-crow "Cat".....44
Screw, A Universal.....489
Seed, Catalpa.....371
Seed, Grass, Hungarian.....352
Seeding, Propagation, Covering, 196
Seeds, Ash and Box Elder, 371—Distribution of, 153—Raising, 287—The Germination of, 15.
Sensation in Hookertown.....60
Sericulture in California.....367
Seth Green, His Works and Ways, 544.
Shed, Wagon.....*..367
Sheep Cough and Sneeze, 311—Foot Rot in, *375—Heads, Characteristic, *499—Hold on to the, 487—Hurdle, *57—Lincoln, *149—Management in Winter, 409—Merino, American, *53—Raising, 59—Raising in the Northwest, 292—Shropshire and Hampshire Down, 420—Southdown, *265—Treatment of Scab in, *240.
Shelf for Stable Dog.....*..97
Shelter-screens.....95
Shrimps, What are.....*..127
Shrub—The Buttonbush.....*..164
Shrubs, Some Useful.....*..213
Silk Culture.....254
Silk-worms, Feeding The.....287
Silo Question, A.....430
Sleds, Two in One.....*.. 49
Soap, Veg table.....*..545
Sorghum a Success, 33—Cultivating in West, 196—Early Amber, 151.
Sphagnum, What Is?.....*..503
Splicer, A Wire.....*..247
Sportsman in Camp.....243
Spruce, Norway, Trouble with..159
Squashes, Trouble with.....371
Stable, Ventilate Cattle..... 5
Stable, Useful in Every.....*..543
Stack, Making a Straw.....359
Stage Coach in New York City.*.408
Stains, Mouse..... 15
Stanchions.....*.. 98
Stations, Agricultural Experiment, 98.
Stencils, Home-made.....*.. 10
Stiles and Gates.....*..533
Stocks, Let us Have More.....105
Stone, Artificial, 430—Big, to Get Rid of, 33—Large, Management, 107—Moving Heavy, *153.
Strangers in Large Cities.....445
Strawberries for next Summer, 298—in Autumn, 511—on the Farm, 155.
Strawberry-bed, Protection for, 159—Pest, Serious, A, * 323—The "Banquet," *323.
Streams, Care of Banks.....*..539
Stump Puller.....*..100
Stump Pulling.....294
Sugar from Sorghum, Extracti'g*320
Sugar, Sorghum.....107
Sumach, Curing.....396
Sumach, Preparing for Market..295
Sunflower as Oil Plant.....102
Swine, Cholera and Corn, 533—Cooking Food for, 527—Farming, 529—Litter Lightly, 539—Salt and Ashes for, *416—Shelter for, 499.

T

Table, Assorting.....*..543
"Tea, Continental Tea, New Jersey".....15
Team, Work, Care of.....367
Temperatures.....346
Timber, Short, and Wood Supply, 246.
Timber, The Time to Cut.....333
Timothy, He'd's Grass.....*..102
Toads do Harm?.....334
Tobacco Ferment in Hookertown, 6.
Tobacco Stems for Currant Worms, 255.
Tomato Vines, Mulching..... 59
Tomato Vines, Pinching.....289
Tomatoes, Stimulant for.....249
Towns, Planning and Improving*492
Teasels and Their Culture.....534
Tramps and the Farmers.*.. 20
Trap, Fish, A.....*..112
Tree, A Rare, 325—Lifter, Convenient, A, *247—Mulberry, Does, Flower, 345—Surgery, Tree, 325—Sweet Gum, The, *67—Top Forming, *102—Trunk Protecting, 421
Trellis, Tomato, A.....305
Trellis, Wires, Fastening.....*..495
Trees, About Staking, 205—Apples, Blight in, 371—Burning Down, *280—Do, Increase Rainfall? 12—Elms, Trouble With, 386—Forest Budding, *255—Fruit, Girdled, 205—Fruit, The Care of, 211—Isolated, *297—Maple, An Enemy to, *322—Peach, Trouble with, 371—Pine, De Lacey's, *423—Propagation of, *295—Shade, 212—Shade, on the Farm, 292—Young, on Prairies, 6.
Trough, Watering A.....*..294
Troughs, Water—Stone and Plank, *18.
Truck, Convenient.....*..197
Truck, Early, from Florida..*..160
Tube, Watering, A.....*..359
Tule Land Cultivation.....412
Trellises, Garden.....*..105

U

Underdraining in Wiuter.....487

V

Vacancies, Fill up the.....287
Varnish, Removing.....289
Vegetable, Early, 51—Not Generally Grown, 147—The Shape of, *165.
Vine to Cover a Building.....205
Vines, About, 371—The Use of, *258—Wild, about the House, 198.
Vineyard Posts.....430

W

Wages, Boy's, Who Owns? 8
Wagon Jack, A.....*..500
Wagon Jack, Improved, An..* 155
Walks, Asphalt or Pitch.....265
Walks, Straight or Crooked...*..546
Wardian Cases, Jardinieres.....340
Wasps, Trouble with.....289
Water, Injurious to Plants.....421
Water, Untiles, The.....*..297
Weed, Cinquefoil, 59—from Arkansas, 430—Killing, Crusher, *99.—Live-Forever, 283—Kill the Late, 326—Plantain, 154-289
Well-house, Southern, A.....*..380
West, The Need of the.....288
Wheat and Meat, 545—Broadcasting, 379—in New England, 18—Rust and Mildew, *544—Sowing, 50—When to Harvest, 280—Winter, Time to Sow, 319.
Wheel, Hitch, A.....*..208
Wheelbarrow, A Spring*..490
Whiffle-trees, Three-horse.....*..305
Willows and Willow Culture....197
Willows, Basket.....96
Windlass, Well, Improved.....*..162
Windmills, Geared.....*.. 34
Window Garden.....*..540
Wire Tightener, A.....*..326
Winter in the Country.....*..525
Withes.....*..529
Wood-house and Wash-room..*.. 12
Wood, Supply of, Important.... 296
Wood, Unripe Cuttings.....280
Work-bench, Farmer's, A.....346
Workshop, Farm, The.....*..283
Work, Early Spring, 56—Shop, Farm, The, 283—Spring, About House, 104.

Y

Yards, Front, What to do with*.. 533

INDEX TO ILLUSTRATIONS IN VOLUME FORTY-THREE.

A

"A Day Off."....401
Adobes as a Building Material(4)411
Agricultural Inventions—Feb. 73–74—March, 121-122—April, 171-172—May, 220—June, 264—July, 304.
Allen, A. B....483
Antlers of Irish Elk....28
Apparatus for a Clyster....543
Apparatus for Honey Drying...281
Apple Blossoms....218
Apples in Barrel....363
Apricot, The....66
April Days....145
Asparagus Bunching....34
Australian Wool Farming...(4)..330
Awnings for Dwellings....(2)..299
Axe, Feuce Post....306

B

Bacteria....64
Bacteria, Magnified....498
Ball Holder, A....380
Barberries, Evergreen, The....115
Barn, $700, Plans (6), 293—Cattle Hillside, Plans (7), 157—Door Fastening, 99—Door Latch, A, 151—Flooring (5), 18—Florida, A (2), 410—Medium-sized, Plans, (6), 203—Remodelled (4), 48-(5) 96—Small, Plans (8) 4-(3) 253.
Barrel Coops, Improved....100
Barrow, Barrel, A, 374—Rack, 12—Wheel, Handles, 112.
Bars, Sliding Support....7
Basin, Silt, Wooden....196
Baskets, Fruit and Flower..(4)..378
Bear-Trap, Saved in a....26
Bedroom in Crctonne....340
Bee-Feeder....364
Bee-Hive, Winter Cover....403
Bee-Tent, A....320
Beef, Elevating....5
"Beneath the Skies of May"....193
Birds, Interesting, ...(2) 263
Blackberries, "Early Harvest".282
Blackberries, The New....(2).. 22
Block, Sand-paper, A....(2).. 69
Board, Squaring, A....162
Book-covering, A Neat....(2)..24
Boot-Jack....167
Boot Scrapers, Home-made....24
Box, Coal, 309—for Plants, (2), 65—Mailing, for Plants (2), 490—Nest, A, 51—Salt and Ash, 416—Wagon, A, 52—Window, A, 166.
Boxes, Transplanting....(4)..163
Bracket, Corner, A....68
Brake, Wagon, A....208
Broccoli, Branching, New, A....257
Broom, Hanging, A....340
Bucket for Bored Well..326
Bull with Head-Gear....197
"Bunny," A Poor Show for....17

C

Cabinet, Corner Medicine, A....425
Cabinet, Wall....(3)..260
Canaries, Old and New In...(2)..488
"Carrying a Joke Too Far"....168
Carving, Line....(2).. 69
Cattle, Angus, 485—Ayrshire, 305—Browsing, Preventing, 11—Butter Maker and Beef Breed (2), 385—Guernsey (2), 321—Heads, 530—"Holstein," 635—In Stream, 446—"Lady Pamelia," 101—"Shorthorn," 500—Tie, Improved, 542.
Celery, New, A....319
Cellar, Above-ground of Bricks (3), 375—Plans, (2), 147.
Cellar Bin, A....381
Charcoal Kiln....107
Chain Cattle Tie....199
Cherry, New, A—"Dougalls."...367
Chest, Meal, A....340
Chicken Coop, Movable....254
Chicken Coops....(6)..105
Chimpanzee, The....119
Christmas Decorations....549
Circles, Which Do Not Seem Round 28.
Cisterns, Connecting Two....153
"Clamp" for Wintering Bees....403
Clams....(2)..428
Clod Crusher, A....50)
Closet, Combination, A....300
Closet Door with Shelves....504
Clyster, Apparatus for....543
Colts, Bitting Device for....162
Comb Foundation, Wire, for Hive, 196.
Conservatory, A Window....65
Coral....219
Corn-House, Plans....(5)..333
Corner-Stand, A....(2)..381
Cottage, $1,500, Plans....(4)..536
Crop Prospects, Talking Over..9
Cupboard, Front, A....117
Curtain, Half-Window, A....424
Cushion, Laundry, A....341
Cuttings in Window Garden....540

D

Dalkon, The....(3). 412
December Scene....539
Derrick Boom, A....(2)..529
Dispute at the Bottom of the Sea, 303.
Dog, Scotch Colley....416
Dogs (13), 206—Gallery of Pugs, 509—of Poodles, *553.
Double-tree, A Light..63
Drag, The....(2)..148
Drain, Tiles for Blanching Celery. 367.
Draining, Simple Leveling for (4) 211.
Dress, Notes on....(3)..259
Duck Houses, Plans....(4)..110
Dwelling, Old, Improved....(2)..148

E

Egg-hatching in Incubator..(5)..343
Eggs, Hatching, The....(2)..169

F

Farm, Fencing, (4), 104—House, Dakota, Plans, (5)—54—Implements, (2), 274—Ornamental, An, 406—Workshop, Plans, (4), 283.
Farms in New York City....(2)..417
Farming, French, (4), 290—in England (6), 250-252—in Germany (8), 496.
Feeding box for Cattle....(2).. 13
Feeding Platform for Young Pigs, 361.
Fence-board Holder....(2)..248
Fence, Bracing, 151—Freshet, A, 155—Picket, 361—Posts, Bracing, (2), 8—Poultry, 57—Slat, A (3), 19 Stake, A, 62.
Fences, Passage-ways in...(2)..487
Fences, Wire Passages in....545
Fennec, The....209
Fern, Maiden Hair, The....67
Fernery, Home-made....69
Fish-hatching House, New York.327
Flag of Truce, The....71
Flood that Brought a Blessing, A118
Flower-stand, Circular....381
Flowers, Carnation, 115—Carrion, The, 118—Chrysanthemums (3), 538—Everlasting, 165—Hepatica, 257—Marigold, Moss Pink, 298—Narcissus, 195-377—Pansies, 256—Poppy, New, A, 422.
Frame, Picture, Plush....330
Frame, Reversible, for Bees....493
Front Yard, Plans....(4)..503
Fruit, Without Flowers....(4)...489
Fruitfulness and Abundance....415
Funnel Trick....550

G

Game, An Old, for Boys....72
Garden Boulevard, A, 492—Northernmost, The, 200—Structures (4), 296.
Gate, Double Latched, 198—Hinge and Sliding (2), 411—Hinges of Wood (3), 62—Lifting, A (2), 210—Posts, Iron and Stone, 493—Wooden-Hinged, 95—Wrought Iron, A, 55
Gates, Farm....(12)..241
Gates in Wire Fences....374
Glove Case, A....25
"Going for Cover"....45
Gooseberry, The "Industry"....282
Grafting, Side....195
Grapes, Preserving in Winter (3), 421.
Grape, The "Niagara"....547
Grass, Ornamental, 420—Fall Meadow Fescue, 379—Timothy, 102.
Grind-Stone Rest, A....198
Ground-Marker, Convenient....47
Grounds, Irregular Management of (3), 339.
Grounds, Small, Laying Out.(4).201
Grove, A Mangrove....27

H

Hand-light, Convenient....(2)..154
Harvest Time....277
Hat-Rack for Farmers....538
Hay, Preparing for Fuel....(7)..499
Head, Body and Legs....28
Head, Noted, of a Noted Flock..53
Head-Dress, Living, A....(2)..506
Hive, Exhibition, An, 527—Carrier, A, 196—Standard, A, 242.
Hoe, Weeding, A....(2).. 6
Holiday Greeting....537
Home, New York, A....373
Hooks, Hay and Straw....(3)..531
Honey, Drying....281
Hornbeam, The....(2).. 23
Horse, Hitch Wheel, A, 208—"Jay-Eye-See," 404—Old English Shire, 285.
Horses, Aprons for, 284—Cross-bred, (2) 484—Draft, 534—for Speed, 534—Good Gait in, (2) 287.
House, Costing $3,500 (4), 494—for $100 (3), 329—for $1,500 (4), 536.
Household Devices....(5)..505
Huckleberries and Blueberries (2)114
Hurdle, Rack, A....13
Hurdle, Sheep, Revolving....57

I

Insect Enemy of Fruit Trees.(8)..103
Insects, Bee Moth, 302—Cabbage Fly, The, 337—Cockroaches, (2) 261—Cottonwood Beetle, (2) 406—Destroyer of Cabbage worm, 379—Elm Beetle, 386—Fall Army Worm, 531—Lady Birds, 347—Leaf-Cutter Bees, 379—Leaf Roller of Apple, 418—Osage Orange, 322-Ox Bot-Fly, 493—Ox Gad-Fly, 420—Strawberry Weevil, 323—Teeth of a Fly, 508—Ticks, 306—Wheat-Straw Worm, (2) 531—Wire Worms, 292.
Instruments for Making Lawns, (7) 332.

J

"June Days."....237

K

Kale, New Curled, A....164
Kangaroo, Rock, The....550
"Kill Calf," The....22
Kitchen Plan....259
Knife, Grafting, A, 95—Trick, 550—Wooden, A, 25.
Knot, Square, How to Tie...(3).. 70

L

Ladder, Fruit, A....359
Ladder, Quickly Made....47
Ladders, Dangerous....52
Lambs, Prize, Lincoln....149
Lamp, Night Stand....215
Leaf-Gatherer, A....306
Leaves of Trees, Varieties..(4)..338
Light Work for Mid-Summer.(3).341
Lounge, Cheap, A....68

M

Manger Bars....63
Manger, Fodder-Saving....420
Marker for Row Planting....163
Match Strike, A....24
Measurer, Land, A....284
Medicine Cabinet, A....24
Mice in Mischief....71
Mississippi, on the Upper...(2).. 14
Moonlight on Lake....445
Mowing Machine, Horse-power (2)199
Mule in Harness....528
Musician, The Young....170
Mussels, Fresh Water....(2)...383

N

Nests for Sitting Hens....153
Newspaper Holder....116
"No More Picnics"....346
Nut, Pecan, New, A....(2)..546

O

Oak Point....507
On the Picket Line at Night....426
"Over the Prairie, Going"....386
Oxen, Devon, Yoke of....541

P

Panels, Birch Bark....549
Panels, Satin....(2).. 25
Park, Wooded, A....535
Parsnip, The....165
Peas, Eatable-Podded....152
Peas, "Oriental."....(2)..501
Pelham Bay....408
Pen Pasture, Movable, A....410
Pen, Swine, Feeding, A....416
Photograph Receiver, A....424
Pig Pen, Pasture, A....254
Pig, The Jersey Red....103
Pigeon Breeding....(2)..414
Pigeon House, Plans....(2).. 7
Piggery Frame, A....(6)..111
Piggery, Prize, A....(2)..376
Pigs, Small Yorkshire....(2)..413
Plant, Artillery, 378—Cocklebur, (2) 361—Chick Pea, The, 66—Cardoon, 165—Fish-Destroying, 502—Floral Chenille, 337—Good King Henry, 212—Horseradish in Flower, 113—Horse Bean, The, 212—Lamb-Kill, The, 243—Nevada Snow, 336—Ohelaria, 345—Oreopanax, The New, 422—Soap and Hair, 545.
Plants, Water Uintjies, 297—Worth Examining, (2) 217-Zebra Rush, 376.
Plantation, Southern Life...(5)..108
Plow Plank, A....326
Plow Shoe, A....210
Plowing....441
Plum, New, A....412
Potato and Seed Tubes....(2)..155
Poultry, Coop for Fattening.110—Houdan, (2) 245—House Plans, (3) 150—House, (3) 542—House Plans, (3) 64—House Plans, (2) 246—Yard Convenience, (2) 50.
Prairie House Plans, (3) 244—Morass, 430—Sod House, (8) 158.
Puzzle, Improved....550

Q

Quinee, Meech's Prolific....328

R

Rabbits in Australia....(2)..490
Rack, Sheep, A....51
Rack, Silk Worm, A....323
Ranches, Cattle, Among the..(2)..106
Raspberry, New Early, A....164
Raspberry, "Rancocas"....502
Rebus, 119-169-218-262-344-427-506-509-551-553.
Refrigerator, Creamery, A....19
Refrigerator, The....(2)..215
Retribution....508
River Bank Repairing....(2)..539
Road Building, Good and Bad.(3) 419
Road, On The....(3).. 58
Root Grafting of Shrubs....105
Rose, Cutting, A....154

S

Saddle, Improved, An....487
Safe, Hanging for Food....(2)..504
Salamander, The....209
Salt Water Farming....(5)..368
Sashes, Home-made....65
Sausage Filling Press....49
Saw Holder, A....294
Saw-Horse, A Good....6
Scaffolding, Portable....(2)..100
Scarf, Piano, A....548
"Schooner," An Improved....428
Scrap-Receiver, A....380
Scraper, A....542
Screen Door, A, 214—Universal, A, 489—Wash-Stand, 299.
Seats, Out-door....(2)..215
Secretary, Home-made....548
Seed Bed for Forest Trees..(2)..302
Shawl Bag....299
Shed, Fodder, (2), 360—Manure, 51—Wagon, 367.
Sheep, Feed Rack, Hurdle (4), 405—Foot Rot, French Treatment, (3), 375—Group of, 570—Heads of (2), 409—Husbandry, 61—Southdown, 365—Treatment of Scab in (2), 240.
Shelf for Stable Dog....97
Shoe Case, Clothes Bag....(2)–425
Shrimp, Common Salt....427
Shoulders in Draft Horses..(2)..335
Shrub, Button Bush....164
Shrubs, Ornamental, Some.(4)..213
Sleds, Two in One....49
Slipper Case, Ornamental....548
Smoke House, A....381
Snake Charmers, Group of....384
Snow Storm, The First....1
Sphagnum....503
Sport for Us, But Death to Them508
Stanchions, Four Good....(4).. 98
Stand, A Plant....116
Stand, Home-made....545
Stencils....10
Stiles and Gates....(6)...533
Stool, Harness, A....211
Stone Fence, Building....18
Stones, Moving Heavy....153
Strawberries, Precious Dish of..261
Strawberry, Bauquet, The....323
Stump Puller, A....100
Sugar from Sorghum, Extracting (2), 320.

T

"Taking It Easy."....216
Table, Assorting, An, 543—Cover, Inexpensive, 549—Decorations (2), 166—Jardiniere, A, 424—Toilet (2), 117—Wall, A, 68.
The Harvest Moon....317
The New Owner, Giving First Orders, 431.
"The Storm is Coming."....357
Threshing Flail, A....283
Thrifty and Thriftless....93
Toads, Tree....(2)..344
Toboggan, How to Make A (3) 70
Tramps and the Farmers...(8).. 20
Trap, Fish, A, 112—Egg, An, 322—for Rats and Mice, 167.
Trees, Banyan, 219—Baobab, "Monkey's Bread," 302—Birch, The White, 56—Burning Down (2), 280—California White Cedar, 345—Cedar of Lebanon, 115—Cypress, Southern (2), 256—Forest Budding (5), 255—Lifter, A, for, 247—Pine, Famous, 423—Planting, Error In, 336—Propagation of (2), 295—Surrounded by a Border, 297—Sweet Gum, The (2), 67—Top Forming (2), 102.
Treed by a Honey-Hunter....342
Trellis, Tomato, A....305
Trellises, Garden....(3)..195
Tricks, "Sleight of Hand"....(4)..550
Trough, Watering, A....294
Troughs, Water....18
Truck, Stable, A....197
Truck, from Florida....(4)..160
Tube, Watering, A....359

U

"Up in a Balloon Boys"....301

V

Vines and Climbers....(7)..258

W

Wagon Brake, Automatic...(2).. 49
Wagon Jack, A....155-500
"Waiting at the Ferry"....382
Walks, Straight and Crooked.(5)546
Weed Culture....(4).. 95
Weed-Killing Clod Crusher.(2).. 99
Well-House, Southern....280
Well Windlass, Improved....162
Wheat Rust and Mildew....(4) .544
Wheelbarrow, Spring, A....490
Whiffletree, Three Horse....306
Whisk-Broom Holder....(2)..214
"Wigwam" for Pigs....(2)..528
Window Drip, Catch for....167
Wing Foo in Dismay....552
Windmills, Geared....34
Winter Scenes....525
Wire Splicer, A....(4)..247
Wire Tightener, A....326-495
Withes....(3)..529
Wood-House Plans....(2).. 12

Y

Yard, Front, Plans....(4)..503

Leading Features of this Number.

Though December brings the year to its close, the *American Agriculturist* appears this month with all the freshness of early spring. In the number, variety, and usefulness of its articles, and in the wealth and beauty of its illustrations, it will not suffer by comparison with any former issue. The following are prominent features, among others, of the present number. The Publishers direct attention to the artistic appearance of the December number. The engravings, in design, execution, and character appropriate to the season are noteworthy. The engravings on the first page, by Bennett, are filled with the sentiment of winter. A striking group of the heads of sheep and cattle, illustrate the characteristics of the leading breeds, as manifested in their heads. The engraving, "A Wooded Park," is a remarkable example of the engraver's art, in representing wooded scenes. A verse of Longfellow's is illustrated by a cluster of gems of wintry scenes, and "A December Day," is another charming bit. The uncqualled skill of Edwin Forbes, as a delineator of farm animals, finds expression in a life-like picture of a yoke of Devon Oxen. The same care has been bestowed upon each of the multitude of smaller engravings that illustrate the various articles.

Mr. Joseph Harris "Walks and Talks" as usual, and gives interesting editorial notes of a recent Western trip through one of the finest farming portions of the West. Col. M. C. Weld writes from "Among the Farmers," describes Devon Oxen, Mutton and Milk, Horse Physiognomy, Heads of Sheep, Milk Fever, etc ...S. B. Reed, whose House Plans have long been a feature of the *American Agriculturist*, gives elevations, plans, and estimates of a convenient Cottage costing $1,500.... Crooked and Straight paths are best according to circumstances, as shown by plans by E. A. Long, Buffalo, N. Y... A. S. Fuller, N. J., writes of Pecan Nuts, and gives engravings of remarkable varieties ...Mule Raising is shown to be profitable, by F. D. Coburn, Kansas . A Western Farmer's methods with poultry, with a plan of his poultry house, are given—and several other poultry articles are timely .. Care of Swine in Winter, with engravings of a "Wigwam" shelter, and several other articles on swine are given....Seth Green, the noted fish culturist, has his garden ways pleasantly told by C. P. Dewey, Brooklyn, N. Y....James Sheehan, Geneva, N. Y., has articles on Hanging Baskets, Wardian Cases, Ivy, Camellias, etc... Doctor B. D. Halsted, gives a popular account of Rust and Mildew in Wheat, describes the Fall Army Worm, the Wheat-straw Worm, other insects, etc... M. E. Bamford, of California, describes the curious Soap Plant of his State, with an engraving....Dr. George Thurber describes the "Niagara" Grape. Chrysanthemum Culture, the Culture of Teasels, Care of the Banks of Streams, etc., etc....Lovers of that amusing breed of dogs, the poodle, will be pleased with the portraits of some fine animals... The usual number of Farm Appliances are illustrated. Among these are a Cattle Tie, a Table for Assorting Fruits, various Gates and Stiles for Wire Fences, A Farm Derrick, The use of Withes, Hay and Straw Hooks, etc., etc... The inmates of the Household have Notes on Fashions, and are shown how to make various useful articles, suitable for Holiday Presents, etc., etc. The Young Folks have a capital Christmas Story, and are shown various Tricks and Puzzles, The Doctor Talks, and the boys are shown how to make a Farmer's Hat Rack, etc... A great number of useful short articles, Chats with Readers, Exposures of Humbugs, etc., make up a wonderful list of useful articles.

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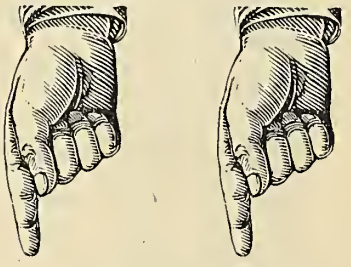
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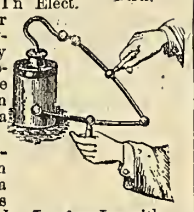
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Dirk.

Dirt-eating, dort'ēt-ing. Cachexia Africana, a disorder of the nutritive functions among negroes, and in certain kinds of disturbance of the feminino health, in which there is an irresistible desire to eat dirt. The practice of some tribes of S. America, of using certain kinds of clay for food.

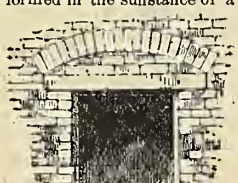
Discharger, dis--chärj'or. In Elect. an instrument for discharging a Leyden jar, &c., by making a connection between the two surfaces. In calico printing, a discharge.



Leyden Jar with Discharger.

Discharge-valve, 'valv. In steam-engines, a valve which covers the top of the barrel of the air-pump and opens upward.

Discharging Arch, 'ing ärch. An arch formed in the substance of a wall to



Discharging Arch

relieve the part which is below it from the superincumbent weight, commonly used over lintels and flat-headed openings.

Discipline, 'i-plin. Education; instruction; training. Rule of government. Subjection to rule. Correction; punishment inflicted by way of correction and training: instruction by means of misfortune and the like. In the R. C. Ch. bodily punishment inflicted on a delinquent; or that external mortification which a penitent inflicts on himself. The scourge a delinquent uses in self-chastisement; or that wielded by his confessor. Books of discipline, two books drawn up for the reformation of the Scotch Church—the first by Knox and four other ministers in 1560, the second by a committee of Assembly of 1578, in which Andrew Melville took a leading part. This is still appealed to as the most complete and authoritative exhibition of Scottish Presbyterianism.

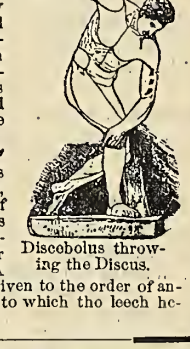
Dischidia, -kid'-i-a. A gen. of Asclepiadaceæ, herbs or under shrubs. One species, D. Rafflesiana, is remarkable for its numerous pitcher-like appendages.



Dischidia Rafflesiana.

Disciples of Christ (Campbellites). An independent sect holding views substantially identical with the Baptists, founded in the U. S., 1809, by Rev. Thomas Campbell, a distinguished preacher of the Presbyterian church, from which he seceded, and his son, Rev. Alexander Campbell, both natives of Ireland. The sect numbers nearly three-quarters of a million communicants, most of them being in the S. and W. States.

Discobolus, -koh'o-lus. In Class. Antiq. a thrower of the discus or quoit; a quoit-player. The name given by Cuvier to his 3d family of soft-finned teleostean fishes. The lumpfish (Cyclopterus Lumpus) is a good example of the group.



Discobolus throwing the Discus.

Discophora, -kof'ō-ra. A sub-class of the Hydrozoa, comprising most of the organisms known as sea-jellies, jelly-fishes or sea-nettles. A name sometimes given to the order of annelids, Hirudinea, to which the leech belongs.

Friction-balls, -balz. Balls placed under a heavy object to reduce the friction, while that object is moving horizontally. Some swing-bridges have such balls placed under them.

Friction-clutch, -kluch. A species of loose coupling much used for connecting machines which require to be frequently engaged and disengaged, or which are subject to sudden variations of resistance.

Friction-cones, -kōnz. In Mach. a form of slip-coupling, which allows the cones to slip on any extreme pressure being applied.

Friction-coupling, -kup'ling. A form of coupling in which two shafts are connected by friction, as in the friction-clutch and friction-cones.

Friction-powder, -pou-der. A composition of chlorate of potash and antimony, which readily ignites by friction.

Friday, frī'dā. The 6th day of the week. Good F., the Friday immediately preceding Easter; which is kept sacred, in memory of the sufferings and death of Christ, as it is believed to be the anniversary of the day on which he was crucified.

Friedland, frēd'lahnt. A town of E. Prussia, 36 m. S. E. of Königsberg, noted for the great victory, June 14, 1807, of the French under Napoleon I. over the allied Russian and Prussian armies, resulting in the treaty of Tilsit.

Friendly Islands (Tonga). An archipelago of the S. Pacific, of which Tongataboo is the chief island; pop. abt. 25,000.

Friend, frend. One of the Society of Dissenters, which took its rise in England about the middle of the 17th century, through the preaching of George Fox.

Frieze, frēz. In Arch. that part of the entablature of a column which is between the architrave and cornice. It is a flat member or face, usually sculptured. A coarse woolen cloth having a shaggy nap on one side, extensively manufactured in Ireland.



Frieze.

Frieze-panel, 'pan-el. One of the upper panels of a door of six panels.

Friga, frig'a. In Scand. Myth. the wife of Odin, a goddess corresponding in some respects to the Aphrodite of the Greeks and Venus of the Romans. Called also Freya.

Frigate, frig'ăt. A war vessel larger than a sloop or brig, and less than a ship of the line; usually carrying thirty to sixty guns on the main deck and on a raised quarter-deck and forecastle, or having two decks. Since the introduction of iron-clad war vessels the term has been applied to those having a high speed and great fighting power. Double-banked frigates, such as carried guns on two decks and had a flush upper-deck. Steam frigates, large steamships carrying guns on a flush upper-deck, and having a tier also on the lower deck.



Frigate.

Frigate-bird, -herd. The name given to a gen. of tropical birds (Tachypetes), pelican fam. (Pelicanidæ), and allied to the cormorants; a man-of-war bird.



Frigate-bird.

Frigid Zone, frij'id. A space about either pole of the earth, terminated by a parallel of 66½° of latitude, known as the polar circles. At the pole the sun is visible for half the year and invisible the other half.

Frimaire, frē-mār. The 3d month of the French republican calendar, dating from September 22, 1792. It commenced November 21, and ended December 20.

Fringe, frinj. An ornamental appendage to the borders of garments or furniture, consisting of loose threads.



Assyrian Fringes.

The use of fringes is of very great antiquity, as shown by the dresses of figures on the ancient

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Every one who reads, should, when he meets with a word that is new to him, or one the meaning of which he does not understand, at once look up the word in a dictionary or elsewhere. But the definitions of the dictionary in many cases are found to be meagre, and the meaning must be sought in some more comprehensive work of reference. Comparatively few can afford to possess one of the standard Cyclopædias, in many volumes.

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PRESENT EXTRAORDINARY.

To every Subscriber (new or old), to the American Agriculturist for 1885, at $1.50, whose subscription is forwarded us before Jan. 1, '85, we will present this Cyclopædia at our office.

Or we will mail it to any subscriber in the United States or Provinces, on receipt of 15 cents additional for packing and postage, making $1.65 in all.

SEE OTHER PAGE FOR TESTIMONIALS FROM SUBSCRIBERS, WHO HAVE JUST RECEIVED THE CYCLOPÆDIA.

AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

VOLUME XLIII.—No. 1. NEW YORK, JANUARY, 1884. NEW SERIES—No. 444.



THE FIRST SNOW STORM.

Drawn and Engraved for the American Agriculturist.

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Contents of This Number

[Articles marked with a star (*) are illustrated; the figure with the star indicates the *number* of illustrations.]

Abutilon, The Snowball.... 23
Apples, Keeping in Winter.... 22
Barn Floorings.... 5*.. 13
Barn, Plan of a Small.... 8*.. 4
Barrow for Drying Bedding.... *.. 12
Beef, Elevating a Slaughtered.... *.. 5
Blackberries, Two New.... 2*.. 22
Boots, Mending Rubber, and Shoes.... 8
Boys' and Girls' Columns:
A Western Boy's Adventure.... *.. 26
Games for Winter Evenings.... 27
The Mangrove Tree.... *.. 27
Do Deer Shed their Horns Annually?.... *.. 28
How Our Eyes Sometimes Deceive Us.... *.. 28
Going! Going! Gone!.... *.. 28
Hunger the Best Cook.... 28
About Scorpions.... *.. 28
Head, Bodies and Legs.... *.. 28
Butchering, Home.... 16
Cattle, Preventing from Browsing.... *.. 11
"Cattle Pull," The.... 8
Carp as a Food Fish.... 11
Cellars, Above Ground.... 11
Chat with Readers.... 15
Chrysanthemums, Why Not More?.... 23
Crop, The Chief of the Country.... 10
Crops, Talking Over the.... *.. 9
Domain, The Public.... 5
Editorial Notes.... 14
Enemy, The Farmers' Most Active.... 18
Facts, Horticultural.... 7
Feeding-Box for Cattle.... 2*.. 13
Fence, Building a Stone.... *.. 18
Fence, Good Cheap Slat.... 5*.. 19
Fence Posts, Bracing End.... 2*. 8
Gambrel or Gammon, Which?.... 16
Garden, The Fruit.... 3
Garden, The Kitchen and Market.... 3
Garden, Flower and Lawn.... 3
Greenhouse and Window Garden.... 3
Hares, The Sylvan and Northern.... *. 16
Home-Made Incubator.... 4
Hook, A Weeding.... 2*.. 6
Hoose in Calves.... 21
Horn-Beam and Iron Wood.... 2*.. 23
Household:
A Neat Book Covering.... 2*.. 24
A Hanging Medicine Cabinet.... *.. 24
How to Starch and Iron.... 24
Good Apple Pudding.... 24
A Match Strike.... *.. 24
Home-Made Boot Scraper.... *.. 24
Chickens Fried with Rice.... 24
Wooden Fruit-Knives.... *.. 25
A Glove Case.... *.. 25
Sally Lunn.... 25
Satin Panels.... 2*.. 25
Hints for Dress.... 25
Hurdle, A Rack.... *.. 13
"Kill-Calf".... *.. 22
Lime for Blasting.... 16
Marking Things—Home Made Stencils.... *.. 10
Mountain Ash Berries.... 23
Orchard and Nursery.... 3
Pear, The Keiffer.... 10
Pen, A Convenient Corn.... 19
Pigeons and Pigeon Houses.... 2*.. 7
Pigs, Summer vs. Winter Feeding of.... 19
Pork, Putting Down.... 16
Rainfall, Do Trees Secure?.... 12
Refrigerator, A Creamery.... *.. 19
Rendering Lard.... 16
Requirements in Modern Farming.... 13
Roots, The Power of.... 16
Sausage Making.... 16
Saw-horse, A Cheap.... *.. 6
Snow Storm, The First.... *.. 1
Support for Sliding Bars.... *.. 7
Tobacco, Ferment in Hookertown.... 6
Tramps and the Farmers.... 8*.. 20
Trees, Young, on the Prairie.... 6
Troughs, Water—Stone and Plank.... *.. 18
Wheat in New England.... 18
Who Owns a Boy's Wages.... 8
Wood-House and Wash-Room.... 2*.. 12
Work, Farm, for the Month.... 2
Work in Horticultural Department.... 3

For Humbug exposures, book reviews, business announcements, etc., see the last pages of the paper.

Wanted.

100,000 men, women and children to canvass for the *American Agriculturist*. Special inducements are offered in the way of valuable Premiums. Furthermore, those who wish to make a business of canvassing will please immediately address us for particulars regarding special offers.

New Features for the New Year.

We have completed arrangements for new departments, and new writers, which will make the *American Agriculturist* in the future more valuable and interesting, if possible, than ever before. During the coming year, agricultural inventions, plans for farm buildings, and the best regions to migrate to in the West, will receive special attention. The Household and Children's Departments are to be rendered more interesting with fresh contributors, while the schemes for duping and defrauding unsuspecting farmers and others, are to be thoroughly exposed.

Why Given?

A subscriber in Kansas wishes to know why old subscribers do not receive Premiums the same as new ones. If he will study our offers more closely, he will discover that premiums *are given* to old subscribers, as a reward for their efforts in behalf of the *American Agriculturist*. Our object in giving Special Premiums, is to increase the circulation of the paper. We do not give any premiums because the journal is not worth far more than the subscription price. Every year we expect to, and are willing to expend tens of thousands of dollars in this manner, in making known, and extending the circulation of the paper. We were, if we mistake not, the first publishers in the United States, to systematically reward the friends and workers of a paper, by means of Premiums. The policy so successfully carried out in the past, we propose to adhere to in the future.

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Special Premiums.

See page 43 for descriptions of new and special Premiums which we present to those who procure and forward us Subscriptions. They are in every way most desirable.

Premium List.

We have now printed **50,000** more copies of the beautiful 32-page Premium List for the benefit, among others, of those subscribers who may have lost or mislaid the one received in October. If every such subscriber will forward his name on a postal card, he will receive a second copy.

What is thought of the American Agriculturist.

See page 42 for expressions of opinion from old and new subscribers, regarding the *American Agriculturist*.



Live Stock Notes.

Horses.—Regularity in feeding is more important than is usually appreciated, with horses as well as with milk-producing cows. Wholesome food and sufficient quantity at stated times is essential to healthful growth and efficient service. The amount of rations is governed by the age of the animal and whether at work or idle. No rule in pounds and ounces of hay and grain can be laid down for any horse, and the one in charge needs good judgment to keep the horses in a strong and healthy condition. A knowledge of the requirements of a locomotive would help many horse owners to a better understanding of the laws of feeding. The amount of coal, water, etc., depend upon the easy movement of every part of the engine, and upon the work being done. The horse is an engine, and, more than that, because it is a living creature and has additional wants. Plenty of food and water are only a part of the needs of a horse. There should be a comfortable stable and all those little attentions which add so much to the health of the animal. Good grooming is essential to good digestion. Cleanliness of the skin is as necessary for the health of a horse as for that of a man. The irritation of the brushing stimulates the healthful functions of the skin; but the brushing may be too severe. There is strong objection to the use of a harsh curry comb. If a good stiff brush is used daily there will be no use for a wire-toothed comb or other harsh implement. The rubbing of the "running gear" of a horse is as essential as that of an engine.

Cows.—Milch cows are generally doing double work at this season, and should be fed and cared for accordingly. It is folly to milk a cow up to within a few days of calving; it is running the animal machine at a reckless speed, and a break will come somewhere. Highly fed cows require a reduction of the rations as the period of calving approaches. This is especially true of high bred animals which are more or less pampered. The young stock, when infested with lice, should have a mixture of equal parts of sweet oil and kerosene rubbed thoroughly upon the surface of the skin.

Sheep.—When lambs are dropped this month almost constant care will be required for a few days, especially if the weather is very cold. It is often best to wrap a chilled lamb in a woollen blanket, and even to remove it to the house for artificial warmth by the fire, and to stimulate it with a little hot ginger tea. A few extra early lambs bring more in the spring market than several times the number of late ones. The breeding ewes should be by themselves in warm quarters. The rest of the flock need comfortable sheds and yards, with good hay, straw and grain, fed regularly with enough litter to keep the floors dry, especially the part which the flock uses for sleeping.

Swine intended for pork are now mainly disposed of, or should be. The store pigs need only moderate feeding and clean warm pens. Provide now for young pigs in May, the most favorable time for them, as the weather is warm and green food

abundant. If possible use a pure-bred boar. As a rule it is not the most profitable to raise pure-bred swine for the pork barrel or for the market either.

Poultry.—Unless the house be warm and the food wholesome and abundant, the hens will furnish very few eggs. The birds enjoy the winter sunshine.

Work in the Horticultural Departments.

A Word to Farmers.—That for cultivators "Summer is the time for work; winter the time for reading and thought," is none the less true because said many times before. When an author says: "There are no acres which the farmer can cultivate with so much profit as those within the boundaries of his brain," it is a striking way of stating it, but it means the same old story, "Now that you have leisure, read and think." It may be asked: "What shall we think about?" We address these notes to farmers rather than to horticulturists. The first point for every farmer in the older parts of the country to settle is this: Am I making the most of my land? It is an accepted fact that those near cities and large manufacturing towns cannot afford to raise ordinary farm crops. All the centres of dense population afford markets for other produce than corn, wheat, oats, etc., and it is the interest of every farmer in such localities to ask and ascertain how he can turn his acres to the greatest profit? These winter months should allow abundant time for answering the question, What shall I grow? There are three principal kinds of culture that may be undertaken by farmers who find a change desirable. Orcharding, small fruit growing, and the raising of vegetables or farm gardening. Each of these, especially the last two, afford products that meet with a ready sale wherever a large population is concentrated. If orcharding is decided upon, let the trees, whether apples, pears, peaches, etc., be of the early varieties, and those kinds in demand which cannot be transported from long distances. If small fruits are to be grown, study up the subject, and select varieties that will cover the whole season. If vegetable raising, usually the easiest for most farmers, ascertain the demands of the market, and arrange to meet them. There is nothing about either of these cultures that cannot be mastered by any farmer of fair intelligence. It is safe to say that by devoting his land to either, he can, after deducting all extra expenses, more than double the return per acre than he can get from any of the farm crops proper. Every farmer near a market should take up this matter seriously, and be ready to make the best use of the advantages of his location. The books and periodicals in each department afford a sufficient guide to those who would take a new departure.

Orchard and Nursery.

The First Duty Here is to take care of what we have. See that fences and gates are secure. In those unfortunate localities where animals are "free commoners"—allowed to run in the road, these half-starved four-legged tramps will take advantage of deep snows and go over an ordinary fence to browse upon the twigs of an orchard.

Rabbits and Mice will continue to do mischief. When the snow is deep and has a slight crust, rabbits can reach the lower branches of trees and prune them after a "system" not given in the books. Traps and shot guns will convert a nuisance into a savory dinner. Rubbing the trunks of young trees with fresh meat or smearing them with blood will keep off rabbits. Pack the snow while light around the base of the trees, to repel mice.

Fruit in the Cellar of the dwelling.—Open the windows whenever there is no danger of freezing. The ventilation is important to the inmates, and low temperature prolongs the keeping of the fruit.

Planting next Spring.—If fruit trees are to be set out next spring, much of the work may be done now—upon paper; make a plan of the orchard, select the varieties and indicate the place for each. In choosing fruit for market, have but few kinds.

Root-Grafting in nurseries is carried on now, the stocks and scions being placed under cover last fall.

The Fruit Garden.

A Great Mistake is made by growers of small fruits who send all their produce to New York or other city markets, ignoring the local markets, which as a rule pay much the best.

Preparation for Planting.—The whole subject should be thoroughly considered and selections made, recollecting that choice varieties for home use, are not always the most profitable for market.

Every Farmer, whether he markets fruit or not, should have an abundant supply of small fruits, all that the family, no matter how large, can eat, from the earliest strawberry to the last grape. Not only will they conduce to health, but will greatly help to make farm life acceptable to young people. The cost for a start need not be large, and when one has a few plants they may be readily increased.

Kitchen and Market Garden.

Though the season prevents outside work with most of our readers, there is no month when something may not be done to save time in spring.

A Gardener's Faith in the return of "seed-time and harvest," is shown by the large amount of labor and expense he puts forth, before results can be secured. His work is largely one of preparation. Much can be done now to save time in the busy days of spring. The successful gardeners are those whose preparatory work is most complete. The most important work of the garden at this season is:

The Accumulation of Manure.—Manure is, "first, last, and all the time," the foundation of profitable gardening. While all else is dormant, the heap of fertilizing material should be growing. All home sources should be made the most of. Horses should, if possible, be bedded with leaves, for the sake of the manure pile. If cattle are fed on corn fodder, by all means cut it, if not for the good of the animals, at least for that of the manure. Arrange to have the chamber slops, and all kitchen refuse not needed by pigs or poultry, go to the pile.

The Poultry House is an important source of manure. It should be cleaned at least once a week. If the fowls are numerous and the room small, a daily cleaning will pay in the benefit to the fowls. The droppings may be added to the manure heap, or kept separate in a dry place for special crops.

Manure from Outside must usually be purchased by market gardeners. It is well to contract for the year with livery stables and others. Whenever a load of "truck" goes to market, the wagon should bring back a load of manure of some kind.

Fertilizing Materials, other than from the stable, are to be had in all large towns. Where there is a brewery, the spent hops, regarded as valuable as stable manure, should be secured. The refuse of tanneries and slaughter houses will make a valuable addition to the heap. Wherever there are manufacturers of horn, bone, or whalebone, secure the refuse and look into the value of other wastes.

The Manure Pile should be so large that it can not get chilled through. When it becomes hot, it must be turned to prevent burning or "fire-fanging." Build up the heap anew, breaking up all lumps, and in such a manner that the outside portions will be on the inside of the new heap.

Other Preparatory Matters.—Overhaul and repair the tools and implements, and have duplicates of parts liable to wear out or break, such as plow points, cultivator teeth, etc. If more sashes are needed for hot-beds, purchase them in ample time.

Home-Made Appliances.—Markers of various sizes should be made. A good wooden reel for the garden line, is better than the poor iron ones usually sold. Make a stock of window boxes for sowing seeds in the house, and provide a stock of flats, etc.

Flats or Shallow Boxes, are much used for sowing seeds to be started in hot-beds, and in which to transplant young seedlings. Starch, soap, and other boxes from the store, can be bought very cheap, and each will make, when cut apart, three or two flats, according to the depth of the box. Three inches is amply deep enough for the flats, and for a number of uses, two inches is sufficient.

Soil for Hot-Beds.—If a supply has not been secured, take advantage of the first thaw, and place an ample stock of rich, light soil in the cellar, or under some shelter where it will not freeze.

Hot-Beds.—For the majority of plants, these should be ready and the seeds sown, six weeks before the plants can be set out in the garden. In the warmer States they will be wanted this month.

Seeds.—Watch advertisements, and send for catalogues, and as soon as they are at hand, decide what seeds must be purchased, and order at once. There is an advantage in this to buyer and seller.

Care of Stored Crops.—Besides preparing for next season's work, it is necessary to care for the stored crops. These are chiefly roots and celery. If roots are, unfortunately, stored in the house cellar, keep its temperature down to thirty-four degrees. Use a thermometer, and when it shows that the temperature is too high, open the windows.

Roots and Celery in Trenches.—Storing roots, etc., in trenches, divided by earth partitions into pits of a few bushels each, is preferable to storing in the cellar. When cold weather sets in, these need a final covering of eighteen inches or two feet of soil, rounded up so as to shed water. In many localities this is not needed before the present month. Celery, if covered too soon, will heat and decay. Leaves, straw, or marsh hay, are used for the covering, which should be slight at first, and finally a foot or more thick. We usually lay boards roof-wise over this covering, to facilitate getting out the celery, when the trenches are covered with snow.

Flower Garden and Lawn.

Little can be done here just now. If snow lodges in evergreen trees, shake it out at once, before it gets icy, or the branches may be broken, as the lower ones are especially liable to be, by the settling of heavy snow upon them. This may need shovelling away.... When snow hides the roads and walks, unless they are marked by wires stretched on stakes, people will drive or walk a straight line for the house, and thus often injure small shrubs on the lawn. This may still be done during a thaw. In mild spells, shrubs may be pruned. Some of them produce their flowers from buds formed last summer, and others upon the growth of the current season. They had better go unpruned, than to allow one not understanding this, to work upon them. While the latter kind may be cut back severely, the others only need judicious thinning

Green-house and Window Garden.

Bulbs potted last fall may be brought, a few pots at a time, to the window or green-house, and given water, gradually at first, and more as the leaves increase. When the flowers fade, cut them away, but keep the leaves in a growing state until they also begin to fade. Then cut away these and take the pots to the cellar. In spring plant the bulbs in the open ground, where they will flower, but not so finely as at first.... Water plants in pots as they seem to need it. It is better to allow them to suffer a little and show that they require water, than to water all alike daily. If this be done the soil in the pot will be in the condition of mud, and the plant grow sickly and die....Dust is a great enemy to house plants. Contrive a screen of light fabric to cover them when the room is swept. Plants with thick, smooth leaves should have them washed weekly, using a sponge or soft cloth. Others may be showered, first setting the pots in a bath-tub or sink....Insects in the green-house are for the most part kept under by a weekly fumigation with tobacco-smoke. House plants may be treated with tobacco water, to be followed after an hour by a showering of pure water. Remove scale insects and mealy bugs by hand; it is the best remedy....When chrysanthemums cease blooming cut the stems away and remove the pots to the cellar....A green-house is, of course, provided with means of ventilation, which should be employed judiciously, according to the outside temperature. House plants often suffer for want of fresh air. Letting down the windows at the top, in the middle of the day, will greatly benefit the plants.

Plans and Description of a Small Barn.

BY "BURR OAK."

For general dimensions see drawings, and for timber, etc., see estimates below. The foundation walls are started in a trench below frost and laid in mortar above the grade, eighteen inches high by eighteen inches thick, faced and pointed, with the sills imbedded and suitable openings left in the walls for ventilation. The horse stable is nine feet high between timbers; its floor of two-inch plank laid with three-inch slope, the planks doubled in the stalls. It is fitted up with mangers, feed boxes, harness-room, etc., as shown. The cow stable is eight feet high between timbers; floor of two-inch plank sloping one and one-half inch back to the drop. It is fitted with stanchions (fig. 8), manger, etc., as shown. The driveway floor is of two-inch plank dressed and matched, or square edged and lined plank. All the doors are made of inch dressed and matched flooring six inches wide. The floors over horse and cow stables are eight-inch matched boards. The outside covering of inch stock boards twelve inches wide, dressed and battened. The cornice of the main building projecting about twenty-eight inches, is finished in good style with neat crown moulding. Ends of rafters cut to pattern as shown (fig. 7). Outlookers are cut in the same style in the gables. The roof is covered with the best quality of shingles. Cupola as shown on elevations, made thoroughly water tight around its base. Rafters doubled and made four by six inches under cupola. The tops of the centre bents are secured by iron rods as seen in fig. 4. The large doors are hung with three heavy forged strap and hook hinges to each. All other doors are hung with T hinges, and provided with all necessary hooks, hasps, latches, etc. The outside is painted two coats of iron or other prepared paints, of colors to suit the owner. All material for the small barn to be first-class of its kind, and the entire building to be thoroughly and completely finished, as specified.

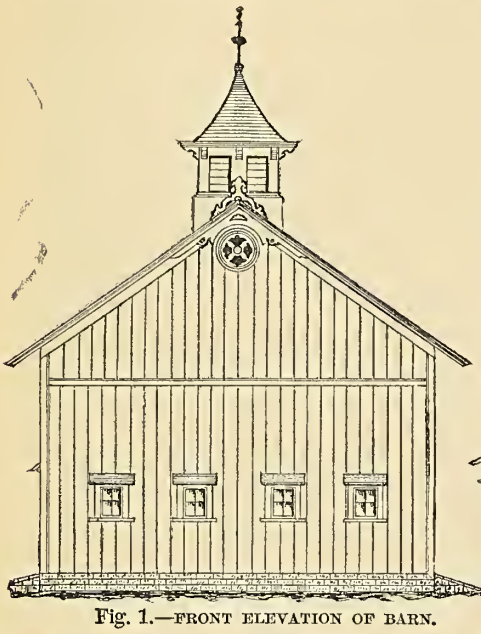


Fig. 1.—FRONT ELEVATION OF BARN.

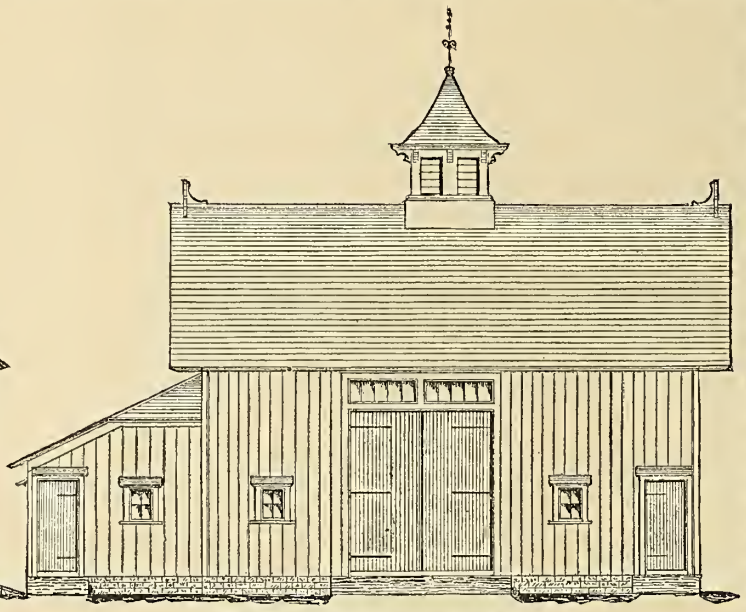


Fig. 2.—SIDE ELEVATION OF BARN.

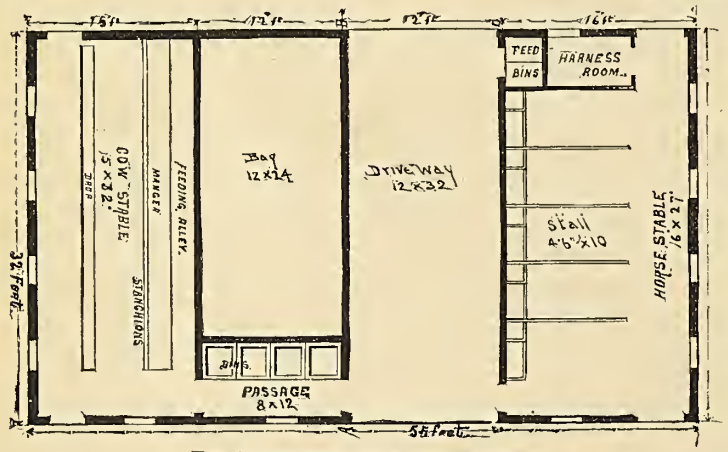


Fig. 3.—GROUND PLAN OF THE BARN.

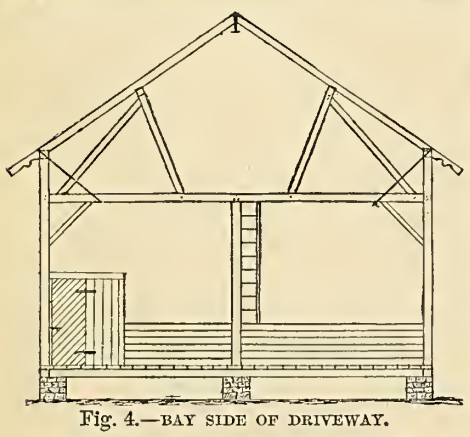


Fig. 4.—BAY SIDE OF DRIVEWAY.

Estimate for Barn.

Timber. 8 *by* 8 *inches. Length*		6 *by* 6 *inches.* *Length*	
2 sills, { To be }	.30 feet	8 plate braces	.12 feet
2 sills, { spliced }	.28 feet	6 pieces	.16 feet
5 sills,	.32 feet	4 *by* 4 *inches.*	
2 sills,	.16 feet	30 pieces,	.16 feet
1 sill, 13 ft., 1 do.	.12 feet	30 pieces,	.12 feet
4 beams,	.32 feet	20 pieces,	.18 feet
2 plates, { To be }	.26 feet	20 pieces,	.14 feet
2 plates, { spliced }	.18 feet	2 *by* 8 *inches.*	
8 posts, 18 ft. & 2 do.	.16 feet	130 joists,	.16 feet
7 *by* 7 *inches.*		20 joists,	.14 feet
2 plates, { To be }	.26 feet	2 *by* 6 *inches.*	
2 plates, { spliced }	.18 feet	40 rafters,	.21 feet
8 posts,	.10 feet	16 rafters,	.20 feet
2 pieces, 6 by 8 inch	.16 feet	12 pieces,	.16 feet
		50 pieces, 2 by 4	.18 feet

Total, 12,252 feet, @ $18.00 per 1,000 feet	$220.53
2,800 feet roofing, @ $12.00 per 1,000	33.60
19,000 shingles, @ $4.50 per M	85.50
2,000 feet, 1 by 12 in. stock boards, 18 ft. long, @ $17.00.	34.00
4,000 feet, 1 by 12 in. stock boards, 16 ft. long, @ $17.00.	68.00
1,500 feet, matched flooring, 16 ft. long, @ $20.00.	30.00
2,200 feet, 2 by 12 in. planks, 16 ft. long, @ $16.00.	35.20
300 feet, 2 by 12 in. planks, 10 ft. long, @ $16.00.	4.80
850 feet, 2 by 12 in. planks, 12 ft. long, @ $18.00.	15.30
2,800 feet battens, @ 80 cts. per 100	22.40
12 windows, 4 lights each, 12 by 14 glass @ $1.25.	15.00
4 do. 5 do. do. 12 by 14 glass @ $1.25.	5.00
Mouldings, $10.00; foundation, $40.00	50 00
Carpenter work, $225.00; painting, $50.00	275.00
Spikes, nails, bolts, trimmings, etc.	50.67
Total Cost	$945.00

In giving the estimates of cost, the prices for building materials are those of the large markets. They will vary somewhat in different localities.

Home-Made Incubators.

Several subscribers who have read the recent articles in the *American Agriculturist* on this subject, wish to know what success has been obtained, especially in using the machines, packing in sawdust, etc. Mr. "C. E. M.," Fall River, Mass., asks for the dimensions of all the parts of a machine to hold seven hundred eggs, best mode of ventilation—in short, all details for constructing a successful incubator. Most of these inquiries are answered in the following from P. H. Jacobs, author of the article in our June, 1883, number, which called out the above requests:—Nearly all the makers of incubators have testimonials in proof of their efficiency, and some of them are excellent. The inquiries now are about those "home-made." Two methods of construction were adopted for the trials; several made by the operators and heated by lamps, hatched well. The average percentage of chickens may be safely stated at sixty per cent. One gentleman secured over eighty per cent from three trials, with about one thousand two hundred eggs, one thousand chicks being hatched. One incubator, which was operated by drawing off cold water from a tank daily, and replacing it with heated water, gave fifty per cent. In every case the operators were novices. The secret of success is in the storage of heat by the sawdust packing which, when fully warmed, gives off the heat very slowly, thus preventing sudden changes of temperature. The thicker the packing of sawdust, the longer the retention of heat, but of course this increases the dimensions of the incubator without corresponding increase of capacity. The hot-water incubator is the safest, as no lamps are used. To hold one hundred eggs, the tank should be eighteen inches wide and thirty inches long, and the depth not less than twelve inches, as the deeper it is the greater the volume of water, and the longer will the heat be retained. The tank is larger than the drawer, as the former rests on supports, while the drawer slides in and out under it. The ventilator and drawer are of the same dimensions (making allowance for the

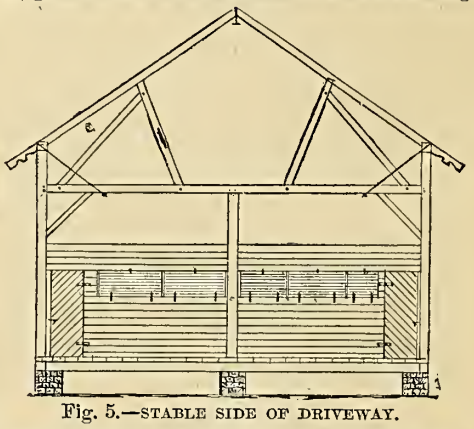


Fig. 5.—STABLE SIDE OF DRIVEWAY.

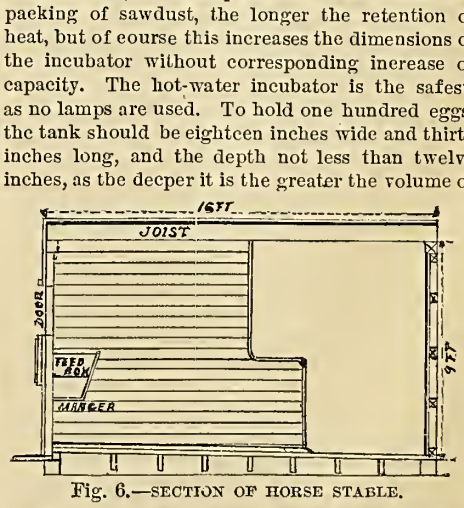


Fig. 6.—SECTION OF HORSE STABLE.

packing), and would therefore be an inch all around less than the tank, or sixteen by twenty-eight. Every two inches added to the length of the tank gives room for another row of eggs. The largest incubators used in Hammonton are three feet wide and four feet long, the capacity being a little over three hundred eggs. To hold seven hundred eggs, the drawer should be about four feet wide and six

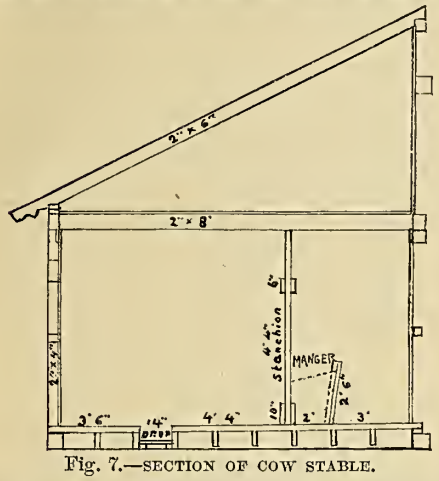
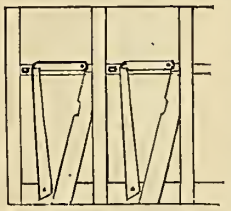


Fig. 7.—SECTION OF COW STABLE.

feet long. The incubators are ventilated by pure air passing under the bottom, then through tin tubes just under the egg drawer, while the heat is radiated upon the eggs from the tank above. The illustrations in the June *American Agriculturist* convey a very good idea of the tank incubator, accompanied by descriptions of the several parts. This brief statement being a reply to special inquiries, those who have not read the June descriptions should do so. Many suppose that incubators require but little care, and numerous mistakes are the result. To hatch successfully, any operator should be willing to devote as much time and labor to the management of incubators as he would to other important painstaking enterprises that are expected to be profitable.


Fig. 8. THE STANCHIONS.

The Public Domain.

H. A. HAIGH.

The "National Domain" embraces all the territory under the domain, jurisdiction, or government of the United States, including main-land, islands and water. By the last census this amounts (exclusive of Alaska) to 3,025,600 square miles, made up of 2,970,000 square miles of land and 55,600 square miles of water in its lakes, rivers, bays, etc. —or 1,900,800,000 acres of land. Alaska is not yet surveyed, but is roughly estimated at 577,390 square miles, which, added to the rest of the country, makes the total "National Domain" 3,602,990 square miles. Allowing same proportion for Alaska (536,780 land, 10,610 water) we have in our National Domain 66,210 square miles of water area, and 3,536,780 of land, or 2,263,539,200 acres, enough to supply 160 acres, such as it is, to each of fourteen and one-seventh million persons.

The term "Public Domain" applies especially to lands owned in fee by the Government, with full right to dispose of them. Since its foundation the Government has owned nearly 3,000,000 square miles, or nearly 2,000,000,000 acres of land (2,894,235 square miles=1,852,310,400 acres). Of this a little over one-third, or 630,000,000 acres, have been disposed of up to the last census, including 100,000,000 acres pledged to the railroads. So we see that Uncle Sam has still quite a good deal of land including swamp waste, etc. [About 45,000,000 acres were parted with up to July, 1883, since the census report of 1880.—ED.]

HOW ACQUIRED.—The lands constituting the public domain were acquired by treaty, by cession from States, and by purchase. All lands in the United States formerly belonging to Great Britain passed to our Government by the treaty of peace concluding the Revolutionary War. Large tracts claimed by certain of the States were ceded by them to the General Government. The territory so acquired embraced the present States of Ohio, Indiana, Illinois, Michigan, Wisconsin, and part of Minnesota, Alabama and Mississippi. They were held by Massachusetts, Connecticut, New York, Virginia, the Carolinas and Georgia under British grants. Lands have since been purchased from France, Spain, Mexico, Texas and Russia.

ITS COST.—No price was paid for the lands acquired from Great Britain or ceded by the States. The purchase from France was made in 1803, under President Jefferson. Napoleon Bonaparte, who was then First Consul, acted for the French Republic. This purchase embraced all of Louisiana, Arkansas, Missouri, Iowa, Nebraska, Kansas, Oregon, Dakota, Montana, Idaho, Washington and Indian Territories, and a part of Alabama, Mississippi and Minnesota. The cost was $15,000,000, besides certain liabilities assumed by the United States, which ultimately brought the cost up to over $27,000,000. This sum seemed at that time a very large one; but as the tract contained 757,000,000 acres, the cost was only a trifle over 3½ cents per acre! Florida was purchased from Spain in 1819, in Jefferson's administration, for $5,000,000, paid in bonds on which about $1,500,000 of interest accrued before their maturity; so that the cost was really about $6,500,000, or 17⁹/₁₀ cents per acre, as it contained about 38,000,000 acres. There were two purchases from Mexico; one in 1848 under President Polk, and another in 1853 under President Pierce. The first included California, Nevada, Utah, and part of Arizona, New Mexico and Colorado. It contained in round numbers 334,500,000 acres, and cost $15,000,000, or 4½ cents per acre. The last, known as the "Gladsen purchase," included a strip of land called the Mesilla Valley, lying in the present territories of Arizona and New Mexico, on their southern boundaries. It contained 29,000,000 acres, and cost $10,000,000, or 34³/₁₀ cents per acre.

The purchase from Texas was made in 1850, under President Fillmore. It included about 65,000,000 acres lying in Kansas, Colorado and New Mexico, and cost $16,000,000, or 24¹/₁₂ cents per acre.

The purchase of Alaska from Russia was at the lowest price per acre of any land that Uncle Sam has bought. It included about 370,000,000 acres, and cost $7,200,000, not quite 2 cents per acre, or only 1¹⁹/₂₀ cents per acre.

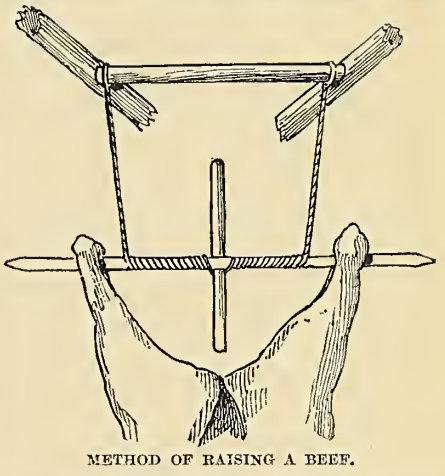
The entire public domain has cost a little over $88,000,000, or 4¾ cents per acre. But the expenses of surveying it have thus far amounted to about $50,000,000, and the expenses of quieting the Indian titles the enormous sum of about $200,000,000. So that the public domain has really cost about $330,000,000, or about 18 cents an acre!

HOW DISPOSED OF.—This vast public domain has been a coveted prize for which schemers have schemed and lobbiests have lobbied. It is estimated that about 20,000 propositions, involving grants of land for all conceivable objects, have failed in the Senate and House of Representatives, and much honor and praise is due to the men on the Congressional Committees having the public lands in charge. But many schemes have been successful, some of them of questionable propriety, yet upon the whole the public domain has been and is being disposed of to the best advantage. The following are the principal items: Cash sales, including prëemptions, commuted homesteads, etc., about 175,000,000 acres; donations, about 4,000,000 acres; military and naval land bounties, about 62,000,000 acres; railroad land grants, about 156,000,000 acres; canal grants, about 5,000,000 acres; homesteads, about 60,000,000 acres; swamp lands given to States, about 70,000,000 acres; schools, seminaries and agricultural colleges, about 79,000,000 acres; lands held under the Timber Culture Act, about 11,000,000 acres.

The railroads have been most successful in getting lands from the Government. The Northern Pacific Road, which has just been completed, had a grant of 42,000,000 million acres—the largest ever given to any corporation—being an area nearly as large as the States of New York, Massachusetts, Vermont, and New Jersey, or nearly equalling Wisconsin. Though the Government still owns an enormous amount of territory the arable agricultural public lands are being rapidly absorbed. It is estimated that exclusive of certain lands in the Southern States there does not remain more than 15,000,000 acres which can be cultivated without irrigation or other artificial means. And these are being very rapidly taken. The facilities afforded persons in over-crowded foreign countries for reaching these lands and the generous liberality of the Government in giving them all farms, leave nothing to wonder at in the enormous emigration which is taking place. From $100 to $200 per person will cover the expenses of an emigrant journey from most of the European countries to the free lands of the West. Under the existing laws persons from such countries, after declaring their intention to become citizens, can get 160 acres under the homestead act, and another adjoining 160 acres under the timber culture act. Every head of a family can do this, and every other member of the family except the mother, of over twenty-one years old, can do the same. If an emigrant has a family of five children, all of age, he can get nearly 2,000 acres of land from the Government for the mere taking. There can be no serious conflicts between labor and capital, no real oppression of the laboring classes by monopolists, and no possible pretense of excuse for communistic doctrines in this country so long as such a condition of things exist.

Elevating a Slaughtered Beef.

Mr. H. C. Blackwood, of Washougal, Washington Ter., sends us a sketch and description of a very simple, yet powerful method of elevating a slaughtered beef, which a single man can easily


METHOD OF RAISING A BEEF.

operate. To any suitable support overhead, fasten the two ends of a strong rope, letting its middle portion down to the desired hight. Insert a round gambrel in the hind legs, and bring the middle of the rope around its center. Place a stick long enough for a lever through the loop of the rope, as shown in the sketch. Carrying this round coils the rope with much force. [If the gambrel be four inches in diameter, and the lever two feet long, one hundred pounds force applied at the end, will lift twelve hundred lbs.; on a three foot lever, eighteen hundred lbs., and so on. EDS].—The carcass can be held at any point, by placing a stick between the upper end of the lever and the ropes. If properly adjusted, when the rope reaches the legs of the beef it will spread the quarters apart.

VENTILATE THE CATTLE STABLE.—Stabled animals require much fresh air, and to secure it there must be a way of escape for the foul gases forming in the stable. Confinement in a closely built stable is liable to bring on inflammation of the lungs and other serious diseases in the cattle.

A Weeding Hook or Hoe.

Mr. P. S. Dorland, of Deans' Corner, N. Y., sends us full size sketches for making what he considers the best "Weeding Hook" he has ever used. A steel bar one-and-one-quarter inch wide and one-quarter inch thick, ten inches long, is hammered into the form shown in figure 2, the edges of the blade being made sharp by the smith and ground. It is bent in the form shown in figure 1, and the shank fastened in a hoe handle of good length.—[This is practically the "bayonet hoe," now sold at many implement stores. We have used one many

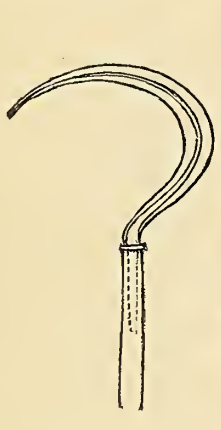


Fig. 1.



Fig. 2.

years, and for working among plants, using the flat edge like a common hoe, have found it preferable to any other garden implement designed for the same purposes. Indeed, it has usually taken the place of the common hoe after seed planting, not only in the garden, but frequently for field beans, corn, etc.—ED.]

The Tobacco Ferment in Hookertown.

Seth Twiggs came in to my barn floor, where I was threshing beans, with an extra amount of smoke curling up from his old stump of a pipe, and greeted me with, "Have you heerd on't?"

"Heerd o' what?" said I; "there's are a good many things stirring in these days of telephones; a man can hardly lead his horse to water, but it is reported in Hartford."

"Yes, I know," said Seth, "but this didn't come over the wires, but happened right here in Hookertown. You see Mr. Spooner's sermon agin tobacco raisin', and chewin', and smokin', has raised the dander on a good many heads, and we are gwine to discuss the tobacco question in the club at the school-house to-morrow night, at early candle-light. Squire Way is coming up from Shadtown, and you chaps that are runnin' down the tobacco crop, and turning up your noses at tobacco smoke, will jest ketch it, see if you don't."

"Well," I said, "I've been catching tobacco smoke a good many years when Seth Twigg's pipe is 'round, and if there's anything worse than that at the club, I'd like to see it. I'll be on hand."

"Say, Squire, is Miss Bunker a gwine? You see, Tirzah would like to go, if the other wimmen do."

"No; Sally's mind was made up a good while ago, and though she says she's open to conviction, I'd like to see the man or woman that would undertake to convict her. There has been no tobacco on the farm or in the house since, not even to kill lice on the calves."

The sermon Seth spoke of was from the text, "Abstain from fleshly lusts which war against the soul," in which Mr. Spooner showed, to his own satisfaction at least, that the tobacco habit was one of these lusts, and gave the strongest kind of proof from scientific authority that it did make war upon the bodies and souls of men. Then, as his first "inference," if it was wrong for a man to injure his health and destroy his body, as many were doing, it was wrong to grow the weed, and to traffic in it; the growers and the venders were accomplices in the crime. It was these "inferences" that gave offence, and started the ferment in Hookertown parish. Mr. Spooner never dodges any responsibility, or undertakes to ride two horses headed in opposite directions. He is square-footed in the pulpit, and we listened patiently for his views on the moral uses of tobacco, and on other things.

It is fair to look at the financial drift of the tobacco crop, at the farmer's club, and in the agricultural journals. Hookertown has an experience with it of a dozen years, or more, and it may interest some readers of the *American Agriculturist*, who are expecting to make their fortunes in the business, to know the results. However profitable it may be in other sections, it is blue ruin here. Our farmers went into it with large expectations of making money, of finding it an easy road to fortune. Mortgages were to be paid off, bank-accounts opened, old houses repaired, new ones furnished, and rag carpets to give place to Brussels, with pianos, and silk dresses—in short, a new order of things, in-door and out. Exaggerated stories were circulated of its profits, such as that an acre of the weed could be sold for a thousand dollars, with clean culture and a favorable season. The less prosperous and careful farmers jumped at the chance of paying debts, and making money. Jake Frink, with his usual fondness for new enterprises, and forgetting his many failures, run in debt five hundred dollars for a tobacco barn. His son, Kier Frink, up in the White Oaks, stopped burning and peddling charcoal, and with a few other coal peddlers started tobacco patches. Deacon Smith was carried away with the craze, and his finest meadow became a tobacco field. Judge Hubbard, whose fine mansion overlooks the river, built a large tobacco barn costing six thousand dollars, for curing ten acres. The barns went up in all directions, great and small, according to the means and enthusiasm of the owners.

Well, after a dozen years of trial and costly experience, we have got down to hard pan, and the bottom facts are visible. The man is not to be found in Hookertown who has made a fortune by raising tobacco. Some have quit the business, and even those who continue it, admit that it does not pay at present prices. The big barn stands empty, and as Mr. Spooner rides by, he quotes from Paul, "They that will be rich, fall into a snare, etc." The brush pasture acreage is increasing, and the heavy business on many farms, now, is carting wood and timber to the river landings, to raise money to pay help. Sugaring down the experience, we have these facts:

1. The tobacco crop requires a good deal of capital to make it profitable. A good barn, built or made over for the purpose, is essential to success. Only heavy manuring and skilled labor will make it pay, and both are expensive.

2. It is an exacting crop to raise, cure, pack, and sell, requiring more watchfulness than most other crops. Starting the plants requires close attention; transplanting needs a wet spell when rains are often wanting; cultivation must be frequent and thorough; topping and worming must be looked after; and as maturity approaches, there is great peril of the early frosts, and liability to damage or total loss. After harvesting there is need of watching in curing the leaf, and experience and skill in regulating temperature and air. Then, stripping and proper packing depend much upon the state of the weather. There is little rest from anxiety, from planting until the sale.

3. It is more uncertain than most other crops. There is one crisis after another, from June to December, and when ready for sale, the price is unsteady and often below the cost of production. There is a gambling element about it not friendly to industrious habits.

4. It tends to divert farmers from more legitimate crops, which feed and clothe the race. This does neither, but sends sickness and poverty into many a home. The grains, vegetables, and grasses, beef, pork, mutton, butter, cheese, poultry, and eggs, are necessaries of life.

5. There is little or no manure in this crop. The stalks, if kept upon the farm, are indeed a good fertilizer, but there is comparatively little of this residue. A ton of hay, consumed in the barn, makes five dollars' worth of manure, if properly cared for, and a ton of clover hay, nine dollars' worth. All animal products make manure to enrich the farm.

6. But tobacco growing, as usually practised, runs out the farm. A few acres may grow fat, but there is leanness in every other spot. Meadows run out and pastures grow up to brush, and there is less grass and hay, fewer cattle, less butter and cheese. If a man gets a little money in bank with this crop, he is likely to lose his farm as a machine for making crops. The deserted farms, the old chimney stacks, the increase of brush and forests, where the plow and the scythe once gathered their harvests, are sad commentaries upon the tendencies of this industry. If any man wants to go into this business, let him hear the wisdom of Hookertown, as she cries on every street—"Don't!"

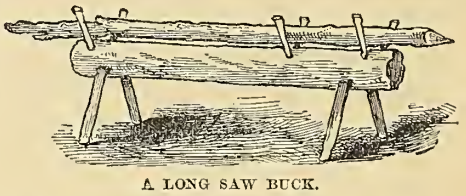
Yours to command,

TIMOTHY BUNKER, ESQ.

HOOKERTOWN, CT., December 7, 1883.

A Cheap Good Saw-Horse.

Having a rough lot of fire-wood, eight to fifteen feet long, irregular round sticks, straight and crooked, from two to seven inches or more in diameter, we made a saw-horse in less than half an hour that has done good service all the past year, and is as good now as ever. An oak stick averaging half a foot in diameter, was selected from the wood-pile, and a piece five feet long cut off. Two one-and-a-half inch auger holes were bored near each end, not quite opposite each other, to avoid weakening the timber at one point, and four strong sticks from the same wood-pile were driven in for legs a little under two feet long, and standing well slanting outward. Six one-inch auger holes were bored in the top, and split out pegs eight or ten inches long were driven in, in a position to firmly hold the wood to be sawed. The two pegs of each pair are not directly opposite, but separated far enough for the saw cut to run down between them.



A LONG SAW BUCK.

Of the first pair one is four inches from the end, and the other seven inches back. The second pair is fifteen inches back of these, and the other in the farther end of the horse, these last answering as a support to the long end of the wood to be cut, the other two pairs being used as the saw-horse. When a stick is reduced to five feet or so in length, it is drawn forward and wholly supported on the two pair of pins near together. The whole is solid, cheap, and thoroughly convenient and effective.

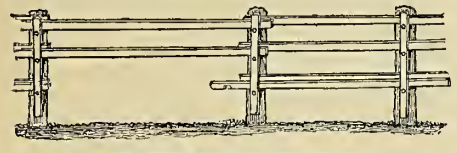
Young Trees on the Prairies.

It is not yet too late to secure Cottonwood cuttings. This tree is not specially commended, but as many will continue to plant it, some suggestions based on experience are offered.—1. Take no cuttings from other than thrifty, vigorous young trees, of an erect clear-limbed habit of growth.—2. Cuttings should be a foot long, and be set in a slanting direction, so as to leave but one bud above the ground. Tramp the earth firmly over them.—3. The next spring, after the cuttings have grown one year, cut them off just above the ground, so as to leave not more than one bud above the soil. This will give one strong, vigorous shoot, and tend to destroy the forky, sprangly habit, which often spoils young Cottonwood trees grown from cuttings. The same plan may be profitably pursued with young seedlings. Many

Western readers of the *American Agriculturist*, will have young Cottonwood plantations a year old next spring, and ready for this treatmeut. Do not be afraid to eut them off. They will be larger in two years after, than if not thus treated. Young Ash require about the same treatment as Cottonwoods, under the same eireumstanees. —4. Stir the soil often but not deeply among the young trees, and keep them free from weeds.

Support for Sliding Bars.

"H. L. C.," Roehester, N. H., sends us a sketeh and deseription whieh we give with a little modifieation. The bars are say twelve feet long, requiring the posts to be set eleveu feet apart to een-



ARRANGEMENT OF THE BARS.

ters. The fenee boards, eoming in from each side, are nailed fast. An upright pieee is fastened to eaeh post, standing out far enough to let the bars pass in against the fenee boards, and rest on stout pins of iron or hard-wood. On the fenee post, seven or eight feet distant, a similar pieee is put on, with spaee for the bars to slide in on the pins as shown by the lower bar partly open. By this arrangement eaeh bar, as moved baek, nearly balanees itself, requiring little exertion to hold and move it, until it reaehes the pin in tbe post, when both ends being supported, it slides very easily baek and forward. Tbere is uo stooping to piek up the bars or going to one side to draw them through. It may be well to make a slight noteh under the left-hand end of one or more of the bars to drop over the pins, to prevent animals pushing them loose when rubbing agaiust them. If any eow or other unusually intelligent animal learns to lift and shove the bars, as we have known done, a bit of wood over the uotehed end will hold it down.

Horticultural Facts.

Trees for Ireland.—Among the plans for the relief of the rural population of Ireland, *Afforestation*, or planting forest trees, is now seriously advocated. That there are wide areas in that generally beautiful eountry suited to timber culture, all who have traversed it are aware. It is elaimed that preparing the land and planting tbe trees will afford immediate relief by giving employment to large numbers; the forests thus planted would be a provision against future times of seareity and trouble. It is probable that the aid of the Government will be asked in behalf of the seheme. The projeet is one that seems to eommend itself as emiuently wise and praetieable for that popular island.

Single Dahlias.—The remarkable "boom" with whieh the new single Dahlias started in England a few years ago, does not seem to have subsided. They have not yet attraeted the attention in tbis eountry which they really merit. A few exhibitions like those made by our growers last autumn, must attraet amateurs to their great variety and riehness of eolor. The English growers have, the past season, sueeeeded in obtaining a "break," and they now have one, the "Union Jaek," in whieh the white ray florets are striped with red, and it is said to be very brilliant. Tbis result should eneourage our own growers of seedlings. There is yet a future for these easily eultivated and showy flowers.

Forestry Exhibitions.—Preparations are being made for au Exhibition of Forestry, during 1884, at Edinburgh, Seotland. It is intended to inelude everything relating to the forestry of the world. Essays and reports are expeeted, both upon forestry and forestry materials in every form. Our eountry made sueh a ereditable showing at the great Fisheries' Exhibition, last year, that we hope Congress may aid in making an exhibition of our forestry. The date of opening is not yet fixed, but it will probably be early in July.—It is also proposed to hold at South Kensington, in the ample halls oeeupied by the Fisheries' Exhibition, an International Horticultural and Forestry Exhibition in 1885. This early annouueement allows ample time for those wishing to exhibit to make preparations. We trust Amerieau hortieulturists, and espeeially those interested in forestry, may be as ereditably represented in this as we were in the fisheries exhibition.

The Tuberous-Rooted Grape-Vine.—We some time ago annouueed the diseovery in Coehin-China and in the Soudan, of a grape with large tuberous roots, a rampant annual stem, and an enormous bearer. Whether the vines from tbe two loealities are identieal or not, remains to be seen. The vine does not appear to have fruited in Europe as yet, but in Portuguese Guiana it has been sueeessfully cultivated. Aeeounts differ as to the quality of the fruit and of the wine made from it, though all are agreed as to its prolific character. We hope it may be found adapted to some of our far Southern States.

Many-Flowered Roses. — This elass of roses (*Rosa polyantha*) has not yet beeome generally known in our eountry. When better known they must beeome popular. Their small flowers are in large elusters of great delieaey and beauty, and must be useful in bouquets. Mr. Jean Sisley writes us from Lyons, Franee, that a new variety of this elass, the "*Perle d'Or*," reeeived a gold medal at the floral exhibition last autumn. It is a dwarf perpetual, witb pale-yellow flowers, deeper in the eentre, and the petals edged with white. He thinks it will prove fine for pot eulture.

An American Violet.—Our native Birds-foot Violet (*Viola pedata*), so eommon in sandy and gravelly soils in the Northern States, has sueeeeded most admirably with us as a garden plant. It keeps in bloom mueh longer than when wild, and its lilac-purple flowers are large and showy. We are glad to see by the journals that this violet is attraeting attention in England. There are two wild varieties of this, well worthy of a plaee among ehoiee hardy flowers. The White (*Viola pedata alba*), some speeimens of whieh are fragrant, is quite abundant. The other, and rarer variety (*bicolor*), has its two upper petals of a dark, rieh purple, witb the velvety appearanee seen in some pansies, making it the most beautiful of violets. It blooms all summer.

Pigeons and Pigeon Houses.

BY D. Z. EVANS, JR.

Breeding pigeons affords especial delight to almost every boy, aud those ouee getting a start will soon have more birds than they know what to do with, unless they are negleeted or some aeeident oeeurs. As with "grown up ehildren" the first boy making a good start in a neighborhood with pigeons is sure to soon have many followers, often to the advantage of the pioneer who has surplus stoek to sell. Many a farmer's boy has yearly earned quite a sum by raising squabs for the early spring markets; and tbey have sold all tbe way from twenty-five eents to two dollars a pair, aeeording to the season, demand, etc. As the eommon large pigeons make good squabs, a stoek to begin with eosts but little. Later hatehed birds are readily sold in autumu, to sportsmen for trap shooting, at twenty-five to forty eents a pair, aeeording to the demand, whieh is sometimes large.

As there is mueh interest in "faney pigeons" many boys, and men too, are making good snug profits by producing pure-bred varieties of various kinds; those who have eonsidered pigeons mere ehildrens' pets will be surprised at the large priees paid for many ehoiee birds in the show room.

Pigeon Houses, neat and attraetive, cost but little. Fig. 1 shows an independent house, and fig. 2 one attaehed to another building. Fig. 1 is set on posts about five and one-half feet long, eighteen inehes in the ground and four feet above. These are eapped with inverted tin paus to keep out eats, rats, miee, etc. Four to six inches in diameter is heavy enough; eedar or ehestnut posts are most durable. The house may be of first-class three-quarter or eboiee one-half ineh stuff planed on both sides; the floor should be of one ineh boards.

Good dimensions are six feet long and four feet wide. Plaee neat windows in eaeh side about two feet long and one foot high. An entranee door for the breeder is just in the rear (not shown). Make a ventilator in each end under the peak, protecting it from driving rain. The pigeons enter through a skeleton affixed on the front end, made as light as possible, but seenre, staying it with wires from the two upper eorners, and if neeessary placing supports under its outer eorners. Common lath will serve for making a neat eage of this kind. It may have a solid floor of one and one-half ineh stuff, or be slatted. The latter is objeetionable in many ways. A sliding door, eontrolled by a string, admits or exeludes tbe birds from this eage at

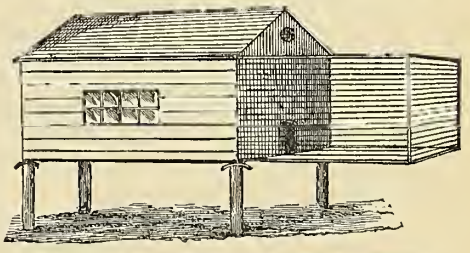


Fig. 1.—AN INDEPENDENT PIGEON HOUSE.

pleasure. Sueh a house, thoroughly and frequently painted, will last many years, even if made of half ineh thiek piue boards. Neatness and eleanliness do mueh to insure sueeess; and purehasers will sooner purehase from and pay the best priee to those having the best appearing houses. Pigeons do better and are freer from disease in an outdoor house than in one, over-heated and illy-ventilated, in a room in a dwelling house, barn, or granary.

Figure 2 is a eheap style of a pigeon house built against a barn, granary, or carriage house. If desired, it ean extend along the entire end or side of the building. As the building furnishes a baek and half the support, it is mueh eheaper than an independent house. The floor and roof are firmly fasteued to the building with stroug nails attaehed to two by three-ineh pieees. The outer posts are the same as in fig. 1, and as many and as long as needed. A good hight is four feet above ground and six feet from the floor to the highest point, the front being three feet bigh. Small sash in front, or on either or both of the ends afford neeessary light. Tbe floor, ends and roof should be of ineh stuff; for the front, three-quarter or one-half ineh boards will do. A skeleton eage or exereise room should run the entire length, supported as shown in the en-

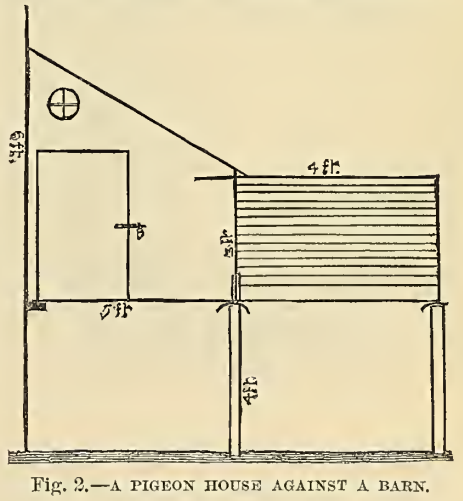


Fig. 2.—A PIGEON HOUSE AGAINST A BARN.

graving, or the weight may pull the house from the main building. The spaee underneath may serve as a shelter for small implements or be fixed to aeeommodate many ehiekens at different seasons of the year. Ventilators should be made at eaeh end and at the highest point of this pigeon house.

Mending Rubber Boots and Shoes—Dissolving India Rubber.

For many years we have had, at the approach of winter, a number of inquiries about mending India rubber boots and shoes, and they have begun to come this season. In cities, the large stores for the sale of rubber goods of all kinds sell a cement for mending rubber articles. Where this can be procured it is cheaper to purchase than to undertake to make a cement. Pure, or virgin rubber, *i. e.*, rubber that has not been "vulcanized," which is very far from pure—is more or less soluble in various liquids. Pure ether, chloroform, pure turpentine, benzole, naphtha, and some other liquids, especially bisulphide of carbon, either cause the rubber to swell up into a soft jelly, or dissolve it altogether. When exposed to the air, the liquid evaporates, and the rubber is left more or less in its natural condition. To use any of these compounds, including that sold (usually rubber dissolved in turpentine), the edges of the patch, and portion of the shoe, etc., should be freshly cut, where it is to be applied. Rubbing the surface with sharp sand paper will often answer instead of cutting, the object being to secure perfectly clean and fresh surfaces at the junction. To make sure of a good job, the surfaces are often covered with the cement, and allowed to dry; then a fresh application of cement is made and the patch carefully adjusted to its place. It is necessary to avoid touching the fresh surfaces. The parts should be held closely together after cementing, by placing weights on them or by some other device. For home make, bisulphide of carbon is the most ready solvent for the rubber. The same difficulty is found here, as in buying the cement, it is only sold in cities and in large places. One part of virgin rubber, cut into thin slips, is to have six or seven times its weight of bisulphide added to it. The solution will, in time, take place in the cold, but more rapidly with the aid of heat. Place the materials in a glass or tin vessel, and set this in another of hot water. Keep the inner vessel from the bottom of the other by two small sticks. The bisulphide of carbon is very volatile and dangerously inflammable, and this should be kept in mind in working with or handling it near a fire or a light. Being so volatile both the sulphide and the cement should be closely stopped. Our correspondent, "J. W.," Harford Co., Md., asks: "How can rubber be melted?" Rubber melts at a high heat, but is of no use in this condition as a cement.

Bracing End Fence-Posts.

Mr. J. Bartlett, Oshawa, Ont., sends us a sketch and description of a mode of bracing the end posts of wire fences in wet, soft land. The post is set

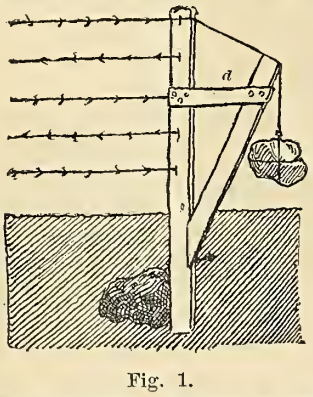


Fig. 1.

down three to four feet, according to the softness of the soil, and any irregular stone bedded against it, as shown in figure 1. The piece, *c*, is notched in near the foot of the post, or held by a strong spike, or better by a bolt, and the horizontal piece, *d*, nailed on. The upper fence-wire is given a turn around the top of the post, brought over through a notch in *c*, and fastened to the stone by a turn or two around it. The operation is seen at a glance.

[This will answer where stones of proper size are available near such land. It has the advantage of allowing for the contraction and expansion of the wires, even though the projecting arms and stone may be in the way, and unsightly. If the end post be in the corner of a lot, it may be better to brace

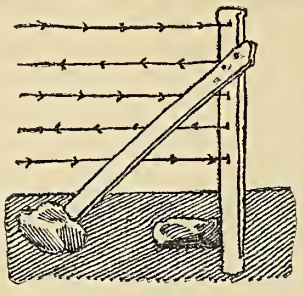


Fig. 2.

the next post to it, and let the stone hang down close along the wires.—Another method for using the same materials is shown in figure 2, where the weight-stone is placed in the soil, with brace resting against it. This does not provide for contraction.]

The "Cattle Pull."

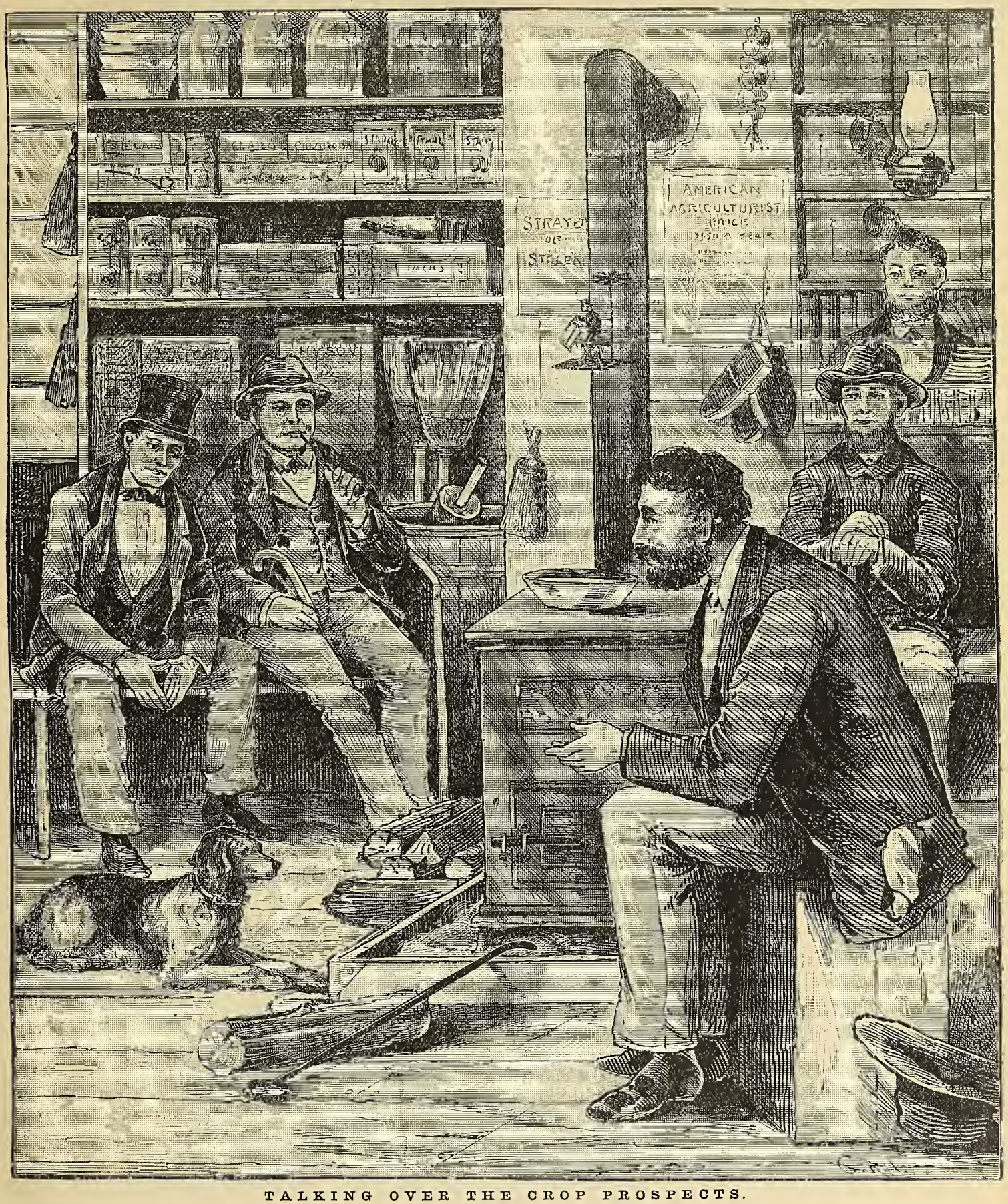
What the race track is to many agricultural gatheriugs, the "cattle pull" is to not a few New England fairs, and well it may be. The go-ahead Westerners are ill content with slow ox-teams; the more speedy horse, and machinery worked by horses, better suit their broad plains and their ideas. On the great pastures a steer is looked upon for the amouut of round and sirloin steaks he will furnish, the dollars he will balance on the scales in the cattle pen and slaughter yard. Imagine a Maine boy telling his Western friend that his steers had gained six inches in girth, and earned their living while doing so! To the latter, the idea of a steer beiug compelled to earn his board is scarcely comprehensible. But in much of New England, especially among the pine trees of Maine, working oxen are appreciated, and at the shows dispute the claim to public attention with the fast horse that absorbs so large a share of admiration in other sections. Hence the "cattle pull" is a feature in most agricultural exhibitions at the far East. It is a novel and interesting sight to one witnessing it for the first time—the level sward set off by a rope, and surrounded by an eager throng of anxious farmers discussing the points and merits of a favorite yoke of oxen, attached or to be attached to a drag weighted with tons of granite slabs. The question to be decided is, which oxen, or whose, is to carry off the palm, by moving the ponderous load the greatest number of measured feet and inches—in other words, which breed, what strain, what feeding and care, what training, have produced oxen that can supply the most strength when put to accurate comparative tests. The trials are of single pairs, and with several teams to show how they will pull together, an important point often.

You see the committee man mount the load, and he calls out so as to be heard by the vast throng, "These cattle are owned by John Martin; girth, seven feet; weight of load, eight thousand five hundred pounds." At the word, the animals, as if conscious of their importance, and that their own credit and that of their owner is at stake, put forth giant efforts. "Fifty-six feet, four inches," is announced. Half a dozen men add their weight to the load. "Twenty-three feet, nine inches," is recorded.—Another yoke takes its turn, but not yet trained to pull at command, and when unhitched, the load has not advanced an inch.

At last autumn's fair of York County, at Buxton, Me., an old dispute was to be settled between two farmers' yokes, one of which had been victorious at the N. E. Fair, and the other at the Eastern Maine State Fair. Both yokes were Buxton cattle; both girthed seven feet three inches, and never had "St. Julius," or "Jay Eye See" more ardent adherents than these bovines. The enormous load of over FIVE TONS (10,500 lbs.) was to be pulled over a grass stubble by a chain. The record of the victors was: Twenty-four feet in twenty pulls!

Who Owns a Boy's Wages?

"W. B. R.," Otsego Co., N. Y., inquires: "If he hires a young man under age, paying his wages as earned, has the father a legal right to collect the amount from him, when he has not given notice that he claims his son's wages?"—This is an important question, as many minors are employed upon farms, and we submitted it to our legal contributor, who replies in this wise: The law writers say that the parent, being under obligation to support, care for and educate his minor children, he is entitled to their custody and the value of their service (2 Kent's Comm., 194; 1 Blackstone, 153). The Courts have several times confirmed this view (7 Mass., 145; 15 Mass., 272; N. H., 28; 15 N. H., 486; 4 Mason, 380). But this right hangs by a rather slender thread. If the minor has been "emancipated," or, as we commonly say, "his time has been given him," then he is entitled to his earnings, can sue for them if necessary, and they should be paid to him, which discharges the debt (6 Cushing, 458; 8 Cowen, 84; 3 Barbour, 115). This emancipation may be brought about by a written instrument, or by a verbal agreement, or by the conduct of the parties. (Shouler's Domestic Relations, 368, and case there cited). The parent's casting his child off or leaving him to shift for himself, forfeits his right to his earnings, and the Courts are liberal in granting such children the right to their wages, and thus encouraging them to earn an honest living themselves. (See many cases cited in Shouler's Domestic Relations, p. 370). A parent's consent to the marriage of a minor, works an emancipation, for the reason, it is said, that in such cases the minor needs his earnings to support his own family. This alleged reason would seem to be just as forcible if the marriage were without parental consent, since the family would need supporting just as much; but a Court in Maine thought otherwise, and gave to the father the young benedict's earnings, leaving the poor wife without a penny (24 Me., 531; 18 Texas, 367). A parent absconding to parts unknown emancipates the minor child, and cuts off a right to his earnings (2 Metcalf, 92). Emancipation may result from misfortune (15 N. H., 490), as when the parent, becoming a pauper, is unable to support his child. This extreme doctrine, however, was only asserted on the ground that, if the parent received the child's wages the latter would himself become a pauper. If a parent authorizes the employer to pay the minor, or the minor to receive the wages, payment to the latter is legal. Such authority may be implied from circumstances (10 Barbour, 300; 19 Pick., 29.) American Courts favor such arrangements between father and son; they are in the spirit of our free institutions. A N. Y. Court, following a Mass. decision, held that if a son goes out and contracts his services on his own account, with the father's knowledge and without objection from him, the payment to the son cuts off the father's claim (10 Barb., 300; 2 Pick., 202). Another Massachusetts case went so far as to imply that unless the father notified the employer that he claimed the son's wages, the employer may suppose authority has been given the son to collect his own wages (15 Mass., 273). New York and some other States provide by statute that payment to a minor will be valid unless the father gives notice to the employer that he claims the minor's wages, within a certain time after the hiring. In New York State it is thirty days.—The above meets the case of our inquirer, and in that instance renders the father's claims worthless, unless, perhaps, the boy had run away from home, and the father did not know of the hiring. But not all the States have such statutes, and in those which do not have them the doctrines above set forth are presumably in force. It is, however, safe to advise all parents to give prompt notice of any claims to minor children's wages, and all employers to ascertain from the parents of non-emancipated children how their wages shall be paid, if they would avoid all possibility of having to pay twice. [This is an interesting topic, and the above will answer several inquiries that have been made from time to time.—EDS.]



TALKING OVER THE CROP PROSPECTS.

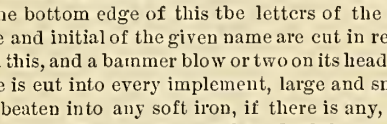
Drawn and Engraved for the American Agriculturist.

All the speculation in crops does not take place at the New York Produce Exchange or at the commercial centres of other large cities. Many transactions, some of them of considerable importance, occur in country stores, village taverns, and even in the farm houses. Within a few years a new branch of the produce business has been developed, that of making the purchases by travelling buyers. These are now a recognized class, as distinct, if not as numerous, as the well known "drummers." The buyers, while very shrewd business men, are affable and companionable, and are able to make themselves at home with the farmers, with whom they talk about crops and their prospects. By going about and meeting the farmers at stores, etc., they are able to form a fairly correct estimate of the probable yield of apples, potatoes, and other produce in the district. From data thus gathered, the buyer is able to make bargains for produce, to be delivered at the cars for a given price, on a future date. Often by paying a needy farmer a portion of the purchase money in advance, they drive a more favorable bargain for themselves, while the farmer is able to meet his interest or other payment. The business has some good features, and in many localities is favorably regarded by the sellers. The buyers knowing this, usually so time their visits as to appear in the farming neighborhoods not long before the period at which interest on mortgages is payable.

Marking Things—Home-made Stencils.

The owner's name put plainly on grain bags, hoes, rakes, spades, shovels, steelyards, etc., and on larger implements, is very convenient, and will very often save their wandering and loss. We have long kept a steel punch, a piece of iron one-half inch square, the corners rounded off a little, the lower end terminating in a flat piece of steel, three-sixteenths-inch thick and three-fourths-inch wide. On the bottom edge of this the letters of the surname and initial of the given name are cut in relief. With this, and a hammer blow or two on its head, the name is cut into every implement, large and small. It is beaten into any soft iron, if there is any, otherwise into the wood, and has doubtless saved twenty times its cost (twenty-five cents a letter) in keeping a great variety of things from straying off, or remaining in possession of borrowers, who are thus precluded from saying of them "they did not know whose they were." These punches, made to order, can be got by mail at moderate cost.

STENCIL PLATES are very convenient, not only for marking boxes of merchandise, but also farm implements, grain bags, barrels, etc. They are thin strips of tin or other metal, with the letters cut through. The stencil is laid flat upon any ar-



ticle, and a brush or cloth wad, smeared with a lamp-black mixture, is brushed over the letters, marking through the openings. It is important to keep the edges straight and even, so that they will lay flat and close upon the article to be marked, or the color will spread out under the plate, and the interior lines run together. Such plates are made to order usually at five to ten cents per letter. "Iroquois," of Jamestown, Ohio, sends us a method of easily making stencils at home, at no cost, if one has a simple bracket saw which will cut tin plate. Mark the desired letters on paper, being careful to have the pieces inside the letters supported by attachments to the outside. Paste this paper on any piece of tin, and saw out the parts to be removed. Old fruit cans serve well for the plates; the bottoms and tops are taken off by melting the soldering, and the side seams cut off with shears. With a mallet beat it out to a smooth, flat plate. Lamp-black mixed with coal oil, kerosene, or spirits of turpentine, makes a blacking mixture. A coating of common varnish applied after they are dry enough, renders such letters permanent. The boys may well exercise their taste and skill, and find amusement, in getting up a variety of such plates, as a present to father, and for their own use.

THE KEIFER (OR KEIFFER) HYBRID PEAR.—The discussion as to the value of this singular pear, has extended to the "secular" papers. Mr. C. A. Hovey, having suggested in the "Massachusetts Plowman," that the pear is a "humbug," Mr. Josiah Hoopes, of Pennsylvania, writes in its defence in the "Philadelphia Press." Having been the first to figure and describe this pear (see *American Agriculturist*, January, 1879), we take some interest in the controversy. We then said: "While it may not come up to the high standard of 'best,' it is of sufficiently good quality to be acceptable to those who esteem the Bartlett." Our aim has always been to induce our readers to grow fruit. We do not need to be told that the Concord is far from being a first class grape, that the Wilson is one of the poorest strawberries, but one who has a Concord vine, or a patch of the Wilson, is quite sure to have fruit in abundance. Our object has been to have people begin with fruits from which they would be sure of results, believing that they would soon try better kinds. The Keifer Hybrid tree has proved in healthfulness and productiveness, all, and more than all, that was claimed for it. The fruit is large, strikingly handsome, and sells rapidly at a paying price. It is not a Beurre Bose, or a Winter Nelis, but it is a pear, and the tree has thus far withstood "leaf," "twig," "insect," "frozen sap," and every other form or stripe of "blight." If it were only fit for baking or preserving, we should regard it as of great value. As one who has found out that he can grow Concord grapes, soon makes his way to better kinds, so those who are encouraged by their success with the Keifer, and pleased with its size and great beauty, will soon wish to go a step higher in the list of pears.

The Chief Crop of the Country.

BY E. P. ROE.

What May is for grass, and July for corn, these winter months are for the invaluable growing crop of boys and girls; and upon the care and attention given to this crop the future of the country, the lights and shadows of our own coming years, and the success of the boys and girls themselves, largely depend. The stock breeder looks carefully after the development and training of his animals, especially if thorough-breds. Should not we with more solicitude try to make thorough-breds of our children? Which do you visit most frequently and examine with most diligent interest, the developing animals, the grain fields, the fruit trees or the olive plants in the school-room? Do you personally know the trainer there—his manner and methods? What morning and evening attention do your children get, save to know that the chores are well attended to? Do you father, and you mother, personally know where they are in the evening hours, who are their associates, what outside influences are molding their characters? Do you know that they are developing as strongly, as symmetrically, as rapidly as they might?

I credit every reader of the *American Agriculturist* with understanding well that mind is the true stature of the man or woman. Are you content with providing shelter, clothing and food, and to see them add inch by inch to stature? One hundred and forty pounds of flesh and bone may not make a man; they may constitute an ill-natured, ignorant lad or boor. One hundred and fifteen pounds of feminine symmetry do not make a woman, even though expensively clad. They may present a parody, a caricature, a false sham that will bring bitterness and disappointment to more than one heart.

It is not essential that young men and women be positively bad or obtrusively disagreeable, to fall short of what they should or might be. If we plant a tree or vine of the best variety, and allow it to grow without special attention and training, we know well what we shall find after a lapse of years. It may overspread a wide area of soil, with a useless mass of wood and foliage, yielding a few defective apples or ragged clusters of grapes, that are not poisonous, but such fruit is not in demand in the world's market, nor desirable for the home table. So the boy or girl merely left to grow, develops much as the neglected vine. They may never become vicious, and may even be spoken of as good at heart, like the half-barren apple tree, but are scarcely worth the room they take up in the world.

Are the daughters, when receiving their bent in in early age, actually learning how to fill their future positions well—how to be wives, how to keep the house orderly and make it inviting; to help economize for rainy days ahead, to provide, perchance with limited means, a daily variety of inexpensive yet delicious, well-cooked healthful food. Much of the dyspepsia and ill-health now prevailing is chargeable to lack of early training in the home circle.

If a girl is learning to play upon the piano, is the acquisition of a few showy pieces her aim, or is she studying music? There is as much difference in the two efforts, as between pinning material together to look like a dress, and the power to cut and make a graceful costume. Washing dishes steadily a thousand years, will not teach a girl the high art of thrifty housekeeping; she should not be merely taught to do housework, but to keep house.

Boys may work on a farm until grown up and then be less able to take charge of it than a hired hand. Childish helplessness, combined with physical maturity, is so often seen because children receive knowledge too much as potatoes are placed in a bin—both in a crude state. The one makes blood and muscle, the other mental expertness and power, but both need proper preparation and assimilation. Boys taught to farm as well as to work on the farm, are far less anxious to leave home for town or city. Instead of mere treadmill drudgery day after day, enlist interest in the sciences related to farming with its endless variety. Show a boy that some of the finest minds and most eminent men in the world have been devoted to this calling. Interest him in a pair of blooded fowls or pigs, if not in larger animals, and let him have a pecuniary interest in their increase, however small, also in some crop that he aids in cultivating. Above all, incite him to learn how skill can make "two blades of grass grow where there was but one before."

Now, the long evenings supply just the opportunity for fathers, and mothers as well, to give personal and special attention to the most important product of the farm, the growing crop of boys and girls. The boy at yonder table is studying his lessons; doing "sums" perhaps. Is he merely tumbling dry rules and disjointed facts into his mind to be repeated parrot-like? Suppose you come out of your doze and talk with him. See that he knows why he adds and multiplies. Teach him to apply his knowledge to every-day affairs. Give him the purchase and sale of your farm products, the expense of fields and crops, implements, etc., and have him apply the knowledge he is gaining. Teach him to use it as the soldier uses his weapons, and the mechanic his tools. Your interest in what he is doing will add to his interest, will make him more ambitious, more thorough and more practical. If he is studying geography, show him that the towns and cities he is hunting on the atlas, are not mere dots on the map, but places full of live men who will certainly get ahead of him unless he use his knowledge aright.

And the same is true of the daughters. The results of half hours thus spent will be a surprise to both yourself and the children. If your own early education was faulty and they teach you in some things, it will be all the more interesting to them.

Now is the time to enlist your sons' enthusiasm in your calling, perhaps to rekindle your own also. Go over the Agricultural Journals with them and let them see and know what live men are doing and thinking, and awaken emulation. Let a book or two about some part of your business, or the whole of it, be read to you by the boys. Draw out their comments and make your own. Remember the story of the industrious man, who was ever repeating, "he worked only for his children." Indeed he worked so hard that he never had time to form their acquaintance, much less to help them to become men and women. As a result they soon scattered what he had gathered for them.

You want your children to sympathize with your life and work. Sympathize with their life and pleasures—the life and fun that you enjoyed at their age. A holiday with them now and then, will not be lost time, it will be more than made up by increased efficiency on other days. You can thus renew your youth and give joy to theirs. Recall your own thoughts and feelings when at their age. A few holiday gifts within your means, will bring unalloyed pleasure now, and for many days to come. Make a child happy and he can scarcely fail to be good. At the same time let him be initiated into the secret that those are most happy who add most to the happiness of others. Is your home not a happy one? Ask yourself what you are doing to make it happy. Be not like the publican, always sitting at the receipt of custom, taxing others.—Subject yourself to a little examination.

Preventing Cattle from Browsing.

While that is not the best farming which devotes the same land to orchards and pasturage, yet it is often convenient, sometimes necessary, to allow cattle to graze among trees. Swine are the only farm animals that will do no mischief when allowed free range in the orchard. Cattle, the most gentle, are perverse; however abundant and succulent the grass, they will vary their diet by browsing. It may be they require the tonic bitter of the apple twigs to increase their appetites for the grass; but they will do mischief. Whether among fruit or ornamental trees, they must be prevented from lifting their heads. On the Island of Jersey, where orchard pasturing is general, and where the animals are always tethered, a singular crib-like



PREVENTING CATTLE FROM BROWSING.

Engraved for the American Agriculturist.

structure of wood is used to protect the trees, which is not put upon them, but on the cows. If the gentle creatures have any sense of the ugly, one with her deer-like neck encumbered with such a timber structure would keep her head down for shame, without the need of all its weight. Much simpler are the various methods shown in the engraving, which do not disfigure the animal, and are equally as effective as those more cumbersome.

The Carp as a Food Fish.

BY ROBERT BARNWELL ROOSEVELT.

There is much inquiry concerning the German Carp introduced into this country by the United States Fish Commission. People want to know where it will live, how fast it will grow, and generally what it is worth now that we have it. Often as these questions are answered they come up again, and in truth, the different results reported are confusing unless accompanied with an explanation. Carp are not a first class table fish, but they are immensely superior to no fish at all, when a fish dinner is wanted. They are not as good to eat as the bull-head for instance, but then it may be said that the bull-head is a very excellent fish when well understood. So the Carp can be made a toothsome feature of the dinner table, if the mistress of the kitchen comprehends the mysteries of the sauce-boat. Without that skill, which by the way is universally possessed by our adopted German fellow citizens, and can be learned from almost any of them, the carp is rather tasteless. In very cold spring brooks carp will not grow at all, they rather seem to shrink, if we can imagine a fish shrinking with the cold. But in warm waters, especially in the Southern States, where there is no trouble with frost, they attain an enormous size quickly. There have been instances of their growing to seven pounds weight in two years, which far surpasses anything known of any other species of fish. In the North, if the ponds have hard bottoms and freeze their entire depth, the carp will be killed. But if the bottom is soft and muddy, they will burrow into it and protect themselves. They are said to feed on vegetables, either the natural growth in the water, or the refuse from the garden, but I imagine they are greatly improved by an occasional taste of the numberless insects that are found on all aquatic plants. The same rule applies to them, that is found to govern in all other departments of nature; the best is always the hardest to get. Not only will carp never supply the place of trout, but they will hardly live in the same water. They need little care, and will exist on poorer food, are content in less fine water, and they are in the end an inferior fish. The common proverb says that whatever is worth having, is worth working for, and that, translated into fish literature, means that an ordinary variety is more easily maintained than a superior one. Still there is always more need of the lower class. Few men eat trout, more eat shad, and infinitely more use cod, while the ponds that are adapted to trout, are not as one in a hundred to those fitted for carp. Any old sluggish pond, above a mud-hole, will answer for them. In conclusion, it is almost self-evident that carp are no more a game fish, than a fattened hog is a game animal. Carp can generally be procured through the State Fish Commissioners, and several breeders offer them for sale.

Above-Ground Cellars.

Eben E. Rexford writes us very urgently in favor of having cellars always above ground. He does not explain how he would construct them, but we gather that he would build against one side of the house, as a part of it, with double walls and a covering that would keep out frost. As for that matter, if on the rear side, they might not be very offensive in appearance, and they might be banked up and covered with earth and green sods, and even be covered with plants or trailing evergreens. If adjoining the kitchen warm air enough might be admitted to keep out destructive frosts in very cold weather. These are only suggestions of our own. Mr. Rexford's arguments are that cellars thus placed could be entered on a level like other rooms, by a door direct from the kitchen, and a great deal of running up and down stairs would be saved. He further argues in favor of such cellars that they are more healthful, since there is always a large amount of odors and noxious gases from materials in the underground cellar that rise up and penetrate all through the house, which would be blown away if it were placed outside the house. Again, if on a level, they would be far more likely to be kept clean like other rooms. It is often no small job to carry out the large amount of refuse that is constantly accumulating. Where much milk is produced, and the cellar is the only dairy room, as it is on a large majority of farms, the saving of labor in going up and down stairs to attend to the milk, is an important matter.

The question of economy in construction is one item in the account. Every house must of course have a solid foundation, and the first floor should be two or three feet above ground, or more. The expense of excavation, and of the walls extending below the needed foundation, would usually balance a portion of the cost of an above-ground cellar. There are several arguments on both sides of the question. Let us have some plans and estimates of building cellars on the ground from our readers. "The question is before the meeting."

Wood-House and Wash-Room.

Multitudes of farmers and others have a very good dwelling that answered all purposes when it was first built, but they now want more room in the form of summer kitchen, washing-room or laundry, store-room, etc. The present kitchen has baking and cooking, washing, ironing, etc., and in

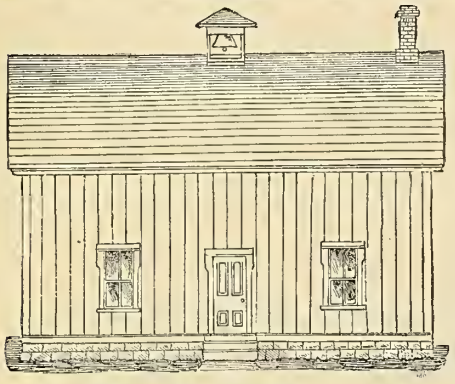


Fig. 1.—SIDE VIEW OF WASH-HOUSE.

many cases this is the only available room, and in the absence of others serves as dining and sitting-room. It is generally desirable to have the wood-house and wash-room connected directly with the dwelling, or built as part of it, yet some will prefer to have them separate; while in other instances the addition of these to the present buildings would entail considerable expense, and many undesirable changes, such as shutting out the light from one or more windows, placing the stove in an inconvenient position, increasing the number of doors too greatly, etc. The building here presented will supply or suggest one remedy, in the form of a detached building, which, however, may be so near as to afford ready passage to the old house. The building here shown is sixteen by twenty-six feet. It is enclosed either with matched or battened stuff, planed and painted. This is cheaper than clapboarding, and is warmer and more durable. The outside entrance is to the wood-room, from which another entry is to the wash-room. The wood-room is fourteen by sixteen feet, and is large enough for most houses. A charcoal bin is shown. If hard coal is the principal fuel, the room may be considerably smaller. The coal bin, or bins, if coal is the chief fuel, should have outer doors for filling direct from the wagons. If wood only is used, it should be neatly piled along the end of the room. There should be a door at least three feet wide at the most accessible place for a wagon, for throwing in the wood. The floor should be supported by strong sleepers or joists, though if the wood is to be worked up under shelter, it is better to dispense with the floor, and simply fill in hard earth a few inches above the outside, to have it always dry. The wash-room is twelve by sixteen, and should

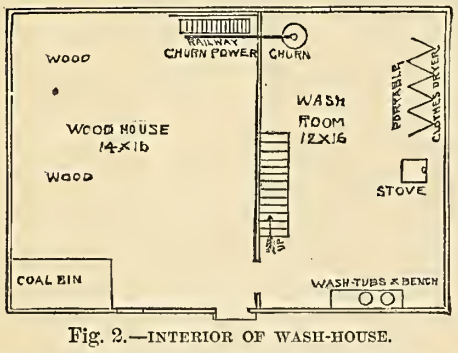


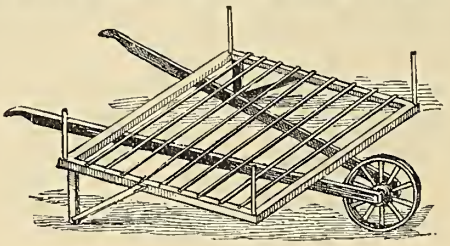
Fig. 2.—INTERIOR OF WASH-HOUSE.

contain a stove, stationary wash-bench, tubs, washing machine, portable clothes-driers; and if a churning power is used, it may be placed in this room, or in the wood-room and be connected by a hand or lever or other gearing to churn. If the posts of the building are twelve feet, with seven and a half feet walls below, a nice, large, commodious room may be placed above, and serve an excellent purpose as a workshop for repairs and making tools, doing odd jobs, etc. In this case it will, of course, have a work-bench, grindstone, a general assortment of common tools, and a lathe, scroll-saw, etc., will be convenient additions. The stairs can run up from any convenient place, say in front of and four feet from the entrance door, for more readily carrying up long sticks, boards, or other timber, as needed. An upper window is useful for taking in long timber. A portion of this chamber may be used as a meal-room, a place for drying clothes during inclement weather, and for a general store-room or catch-all. It may have a bed-room or two for extra help. And last, though not least, place a bell upon the building, protected from the elements by a small belfry, and a rope should connect it with some convenient point in the wood-room. There are steel triangles, now obtained quite cheaply, which answer for bells. So arrange it, that the water may be poured from the tubs and machine direct into the drain, without leaving the room. The wash-room may be used for pearing apples, pitting and drying fruit, trying lard, making soap, and many other important things.

I do not give any estimates, as but few would perhaps build of this exact size; besides being a mere skeleton building, the amount and cost of material is easily obtained. At present prices this building would cost, complete, about one hundred and thirty-five dollars. AGRICULTURAL BUILDER.

Drying Barrow for Stable Bedding.

In cities and villages, often in the country, bedding straw for horses is scarce and high, and quite an item in the expense of keeping. Much of the litter is merely dampened, and if well aired and dried, may be used several times. A simple, convenient



A RACK BARROW.

and effective arrangement for this purpose, is a light wooden frame, placed upon a skeleton wheelbarrow, the handles being about seven feet long. At each corner of the frame a wooden post is placed, twenty inches high. Two inches from the top of each, a nail is driven to support a second light skeleton frame when needed. Wheel the barrow to the stable, and fill the lower frame with the soiled bedding, put on loosely, nearly up to the nails. Then rest the second frame on the nails, throw on the rest of the litter, wheel out into the sunlight for drying and airing, and by night, even that badly soiled, which would otherwise be thrown away, is in good condition. In stormy weather the barrow may be wheeled into some out-building or shed. The stables are thus rendered purer and more healthful. This simple cheap arrangement pays for itself in two months.

Do Trees Increase Rainfall?

GEO. GLENDON, JR., OF VIRGINIA.

An old theory, that dies hard, and is constantly reappearing in our newspapers, is, that "forests increase the rainfall," and that felling forests has been attended with decrease of rain. Statistics from Jamaica have been much used, but do not prove the old theory. The former copious rains there now fall in the sea north of the island, where there are no forests to attract it—resulting perhaps from a change in the Gulf stream. That forests preserve moisture in the soil, and water in the springs; that mountains covered with timber protect lowlands from destructive freshets, is true, and cannot be too strongly impressed on the public, but it is not necessary to mix error with truth, and try to make people believe that by planting a few trees they can change the climate of a whole continent.

In Virginia the drouths for the last ten years and more, are disheartening to farmers, and they talk of the good old times before the war, when seed time and harvest never failed, lamenting the dry seasons that now prevail in the well-wooded mountains, as well as in the low country. Yet, the whole country is growing up to trees, the "old fields" being quickly covered with pines. On my own farm, a field that was in corn eleven years ago, is now an almost impenetrable thicket. Surely if trees affect rainfall the Virginians may well say, "Down with the trees, for they bring drouth!"

We really know but very little about the causes that bring about an increase or diminution in the annual rainfall. Two French philosophers, Fautrat and Sartriaux, found that about one-twelfth more rain fell over a piece of forest than on the adjoining country. This fact went the rounds of the papers as proof that the foliage of trees attracted rain, until it was pointed out that the experiments extended from February to July—about half before the leaves opened, and half afterwards, and that the trees received quite as much rain when entirely bare as when covered with foliage, and even one-sixth more in March when there was no foliage to invite rain or condense the vapor.

A few years ago when spending some time in Utah, I noticed that Great Salt Lake was rising. Some fences, once on dry land, were under water, and the rise of water was said to average one foot a year. The inhabitants said the annual amount of rain was increasing. Some attribute it to the orchards and shade trees they had set out, forgetting that for every tree planted, a hundred or more were cut down on the mountains. Others thought it was due to plowing and cultivation; others were sure that the iron rails of the Pacific Railway brought electricity and rain from the East! A like increase of rain prevailed, and perhaps still prevails in Western Kansas and Nebraska. Forgetting their destructive drouths the papers asserted that rain followed civilization, with its clearing, plowing, and harrowing This was certainly a pleasant view of the subject to an incoming population, and for those who had lands to sell.

On the contrary, early settlers in Illinois found navigable rivers that are now dried up, or mere disconnected puddles. A writer in 1874 says: "Formerly the Fox River was a deep and flowing river all the year round. To-day, and during the drier portions of the last four summers, its vast, deep, and broad bed was, and is, nearly dry." As there were no forests to destroy in Illinois, may not the claim be true that cultivation means drainage, and drying up of the country—the reverse of what is believed to obtain in Western Kansas?

The amount of water which air can hold in solution depends on the temperature. A wind from the Atlantic expands in rising over the land; its temperature consequently falls, and rain is precipitated; going westward, more water falls, until the wind crosses the Rocky Mountains, a dry wind. The winds from the Pacific deposit rain and snow on the low lands, and on the western mountain slopes, passing beyond into Nevada, as dry as air can well be. In crossing the Sierras from Nevada into California, in a wagon, I have been repeatedly struck with the great difference a few miles of country make in the vegetation. Once when crossing into California with a small party of miners, on reaching the summit they all would shout, "see that flower," "see that bush," pointing to well-known Californian plants. Then as we rolled downwards, singing and laughter showed how happy the men were in the home memories suggested by this mountain flora that cannot flourish on the moisture lacking eastern side of the Sierras.

The great Utah Basin, bounded on the east by the Rocky Mountains, is cut off from the Atlantic moisture by the Rockies on the east, and the Pacific's evaporation by the Sierras on the west. The vast tracts lying between the Missouri River and the Rockies, rising slowly but constantly, has necessarily a diminishing rainfall as we go west, and higher. The rise is so gradual as to be imperceptible, but the grasses become shorter, the soil drier, farms and homesteads fewer in number until agri-

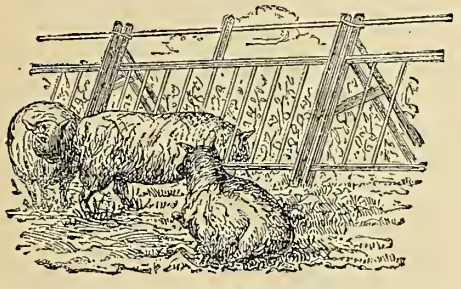
culture ceases, except by irrigation, and sheep and cattle graze the short herbage of the unplowed prairies.

To tell men struggling on the border line between tillage and pasture, that setting out trees will alter the climate is to deceive and injure them. A few years of extra rain in the growing season, excite hopes, and grain is sowed, to be certainly followed by years of drouths and ruin. Seasons vary, but our country is laid out in such a way that the intelligent observer may know where he will run the ordinary chances of success or failure depending on the weather, and where, too, he will be surely ruined if he plays a game against nature.

Trees, where they will grow, will protect hillsides from denudation; and the forest soil by holding back water like a sponge, will prevent to a great extent the destructive floods that rush off from a bare mountain, like water from the roof, but that trees bring rain is not proved. Our weather appears to be subject to important changes, far beyond the reach of a forest, or a clover field.

A Rack Hurdle.

The hurdle shown in the engraving is much used in England and other old countries for feeding off clover, vetches, and such crops upon which it is not desirable to have the animals turned while



A FEEDING HURDLE.

eating. The hurdle is placed upon the edge of a field bearing a forage crop, and the animals, usually sheep, graze through the openings. When all the fodder within reach has been eaten the feeding fence is moved forward a few feet to new pasturage. The panels of the hurdle are placed in a leaning position, resting on stays, which may or may not be fixed in the ground. The construction of the hurdle fence is clearly shown by the engraving. A structure of this kind would do good service on many American farms when it is desired to thoroughly feed off a small part of any field.

A New Requirement in Modern Farming.

A good farmer always needed skill, but in the changed conditions of modern farming a different kind of skill is needed from that required by our fathers and grandfathers. This is more largely the case West than East, but true in both. Formerly it was mostly manual skill in the use of simple implements, such as the sickle, the scythe, and the common walking plow. Now the farmer needs to know how to adjust, run, and care for machinery. Machines properly handled call for little manual expertness to run them. But to manage the present implements requires a degree of mechanical skill that a large proportion of our farmers do not possess. To comprehend the full extent of this change, compare the modern threshing-machine with the old-fashioned flail, or the self-binding harvester with the old sickle, or its successor the grain cradle. Every careful observer must recognize the fact that the lack of skill in using and caring for his machinery, is one of the most potent sources of loss to the farmer.

We have known one man to use a mower for ten years, without expending over thirty dollars in repairs—or three dollars annually—while his neighbor, in cutting a smaller quantity of grass used up three equally good machines in the same time. Compare the expenses of this one item: First farmer expended one hundred and thirty dollars, plus, say seventy dollars for interest—or two hundred dollars in all—for ten years. This is just twenty dollars per annum; quite an item, you will say, for mowing-tools alone, but still much cheaper than mowing with the scythe. The other wore out three machines, three hundred dollars, to which add repairs, say same as the other, thirty dollars, and interest on one hundred dollars for ten years, seventy dollars; on one hundred dollars (the second machine, for six years), forty-two dollars; and on another one hundred dollars (the third machine, for three years), twenty-one dollars, and you have a grand total of four hundred and sixty-three dollars—or forty-six dollars and thirty cents per annum—an annual expense of more than twice as much as the other. The same calculations concerning the harvester, the sulky plow, the hay rake, and other farm implements, make an enormous difference in the cost to the man who is unskillful in using and caring for them. An important inquiry is, how the present difficulty can be remedied.

It cannot be done at once. It will only be done effectually when our farmers' boys are trained to some knowledge of elementary mechanics, either in the public school, or in those established for the purpose. It would now be a paying investment for the farmers in a township to contribute money and hire a skilled mechanic to teach the boys—and men, too, for that matter—the principles and something of the practice of running and keeping in order farm machinery. For illustration, take the mowing machine. There are two points in this needing special attention, viz., the cutting arrangements, the knives and guards, and the parts where the circular motion is converted into reciprocating motion. It is not difficult to teach any one the conditions needed for a shear cut; the section should be sharp, and the corner of the guard against which the grass is pressed to be cut, should be square or sharp. This point once understood, there is little danger of a driver risking the experiment of mowing with a dull knife. The other point is equally important. If there are any loose bearings between the drive wheels and the knives, the power required is much greater, and the danger of breakage, as well as the wear and tear of the machine, will be increased in a much higher ratio. A play of one-sixteenth of an inch in the wrist from where it is connected with the pitman will increase the power required one-fourth. Now in the school suggested, a skilled mechanic could teach, explain and illustrate such points as these until the dullest could not fail to comprehend the difference between a machine in order and one not. It would be easy to make models of those parts of common farm machines where most trouble is met, so arranged as to exhibit to pupils in the most convincing manner the points referred to above.

The difficulty with many farmers is not want of general intelligence, but total ignorance of the simplest mechanical principles. A neighbor once asked the writer to examine a mower which acted strangely. It would go well enough for a while, and then suddenly refuse to cut at all. He was on the point of throwing the machine away and getting a new one. Examination showed the simple difficulty was that the frame was loose, so that when any unusual strain came upon the cutting apparatus, it spread and allowed the cogs to slip past. Ten minutes' time remedied it, and the machine ran for some years afterward. The owner was an intelligent, well-informed man, but had no knowledge of machinery. Our Public Schools may do something in teaching the elements of mechanics to the older boys. It would not be difficult to prepare a little manual which would enable a teacher who himself comprehended the subject, to teach much that would be of the greatest use to these young men. Something may be done also by intelligent farmers in furnishing these boys with a small shop and a few good tools, and on rainy days encourage them to learn their use by making small articles, either for play or profit. Anything which will cultivate the mechanical eye of the young, teach the use of tools, or develop a taste for mechanical employments, is in the right direction. But something must be done. The West cannot afford to stand the enormous drain on its profits in farming, caused by this needless destruction of farm tools.

Feeding-Box for Cattle or Sheep.

Mr. J. Bartlett, Oshawa, Ont., sends us a sketch and description of a convenient feeding arrangement which has several advantages. We add several suggestions to Mr. B.'s description. It is simple in construction; may be made either stationary or portable; will save much waste of feed usually trampled under foot or soiled; and may

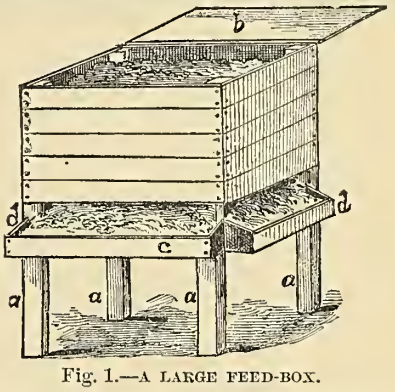


Fig. 1.—A LARGE FEED-BOX.

also protect the feed from rain. It can be used for hay, straw, or roots. If to be stationary, set in the ground four strong posts, *a*, *a*, *a*, *a*, of any available size, or six by six inches. Round timber, hewn straight on two adjacent sides, will answer. They may extend above ground, six, seven, or eight feet. The box may be of any size, but four feet square is a good one, and they can be multiplied to any number needed. If to be portable, the posts will not be set in the ground, but a narrow board nailed a little above the ground will strengthen them, if the top boards are not strong, and firmly nailed on. Feeding boxes may be put on two or four sides. About two and three-quarters to three feet above the ground, nail boards on each side, continuing them to the top. About two feet from the ground, on the inside, place bottom boards slanting upward to the centre at a sharp angle (fig. 2), like a roof—a two-sided one if there are to be two feeding boxes, or a four-sided one if there are to be feeding-boxes on all sides. From the base of these inside boards extend feeding boxes on the outside, as shown at *c*, *c*. The bottom arrangement, *e*, which will have nine to twelve inch-openings, *d*, will keep the feed sliding down to the animals,

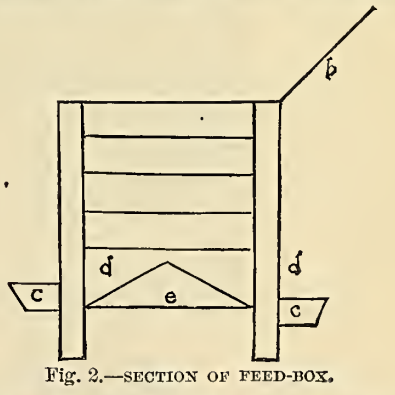
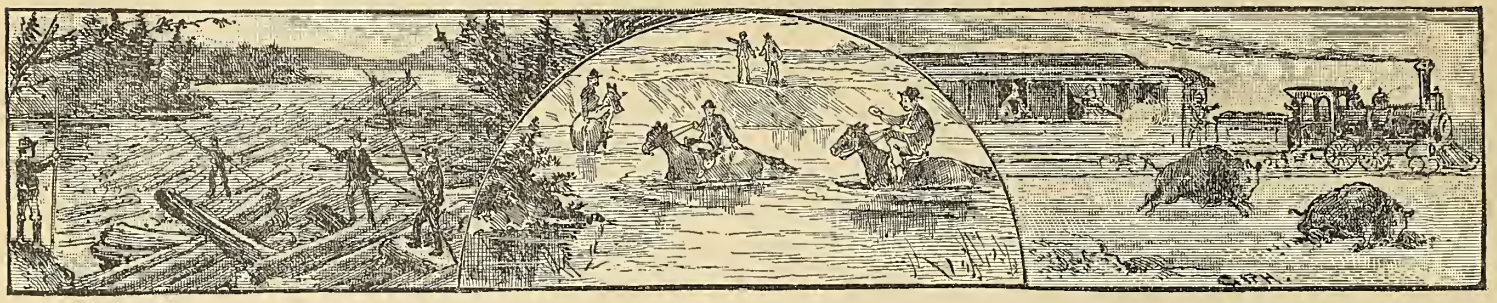


Fig. 2.—SECTION OF FEED-BOX.

or for finer feed and roots may be even narrower than nine inches. A cover, *b*, will protect the feed from rain or snow. This may turn back a little past perpendicular, and be supported by a short bit of chain attached by a spike or staple at one end, and to the side of the box, or by a stake. It may have hinges that will allow it to turn over and down against the outside, but this will require more labor in moving it. It may be simply a loose cover to slide partly off, when placing in feed. If set on with a little inclination, by making one side of the box lower than the opposite one, it will shed rain better. With boxes of this kind, spacious and high enough, two or three days' supply of feed for the cattle may be put in at one time.



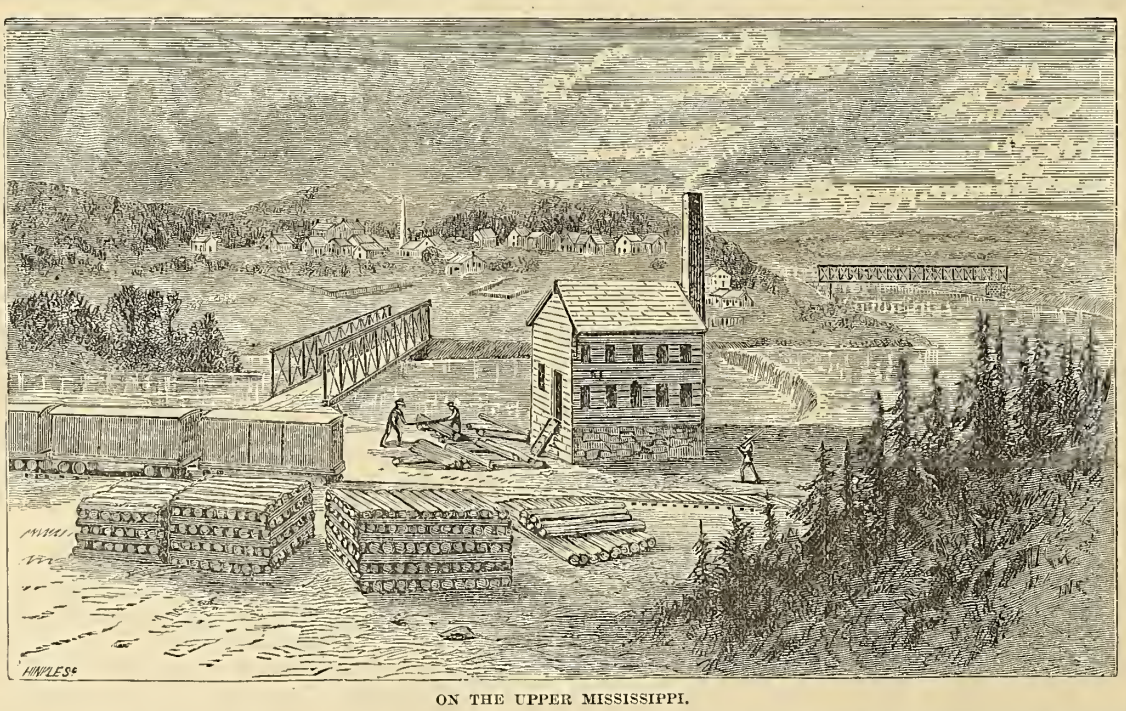
Editorial Notes on the Road.

Among the Lumbermen.—The picturesque life and more picturesque scenery in the lumber regions of Michigan and Wisconsin richly repay one for the time spent in reaching them. Machinery and railroads are working great changes in these regions. Formerly logs were floated down rivers to Clinton, Ia., Fond-du-Lac, Wis., and other points, and there converted into timber. Now these logs are largely sawed up in the forests by portable mills, and the lumber is distributed through the country by a net-work of railroads. "Osbkosh and Fond-du-Lac are running down," said a fellow passenger to me, living at the latter place; "small holders have been bought out by large syndicates, who run portable saw-mills in the lumber regions." One capitalist alone, residing in Fond-du-Lac, now owns eighty thousand acres of pine lands in Southern Michigan, near the Wisconsin border. These lumbermen are great characters in their way. Very many of them, in addition to their dark-blue shirts, sport woolen trousers of a fiery red color. They frequently work during the winter months in the pine forests, and act as sailors upon the Lakes during the summer season. The illustration at the top of the page affords a glimpse of logging scenes on the wild Menomonee, which river for some distance constitutes the border line between Wisconsin and Michigan. Several lawyers and other professional gentlemen of Chicago, are accustomed to spend their vacations in this wild region of country. Mr. John Lyle King affords some pleasant sketches of this out-door life in his volume of "Summer Wayfaring in the Northern Wilderness."

Treacherous Quick-sands, and River-bottoms.—The quick-sands of the Missouri, Platte, and other Western rivers, are nothing, if not exceedingly treacherous and dangerous. Every year many cattle, and some horses and swine "go through," as the expression is, and disappear. Immediately following the fall of the section of the great bridge spanning the Missouri at Omaha, the necessary grappling irons were brought into play for its recovery. But no traces of the missing section could be found. The vast structure had, in a few hours time, sunk in the sands of the river-bottom, beyond all reach or hope of raising. One night, a water-spout carried away the Kansas and Pacific railroad bridge, over the Kiowa Creek, fifty miles this side of Denver. The next train, comprising an engine and freight cars, was precipitated into the quick-sands beneath, killing the engineer. From Lawrence, Kansas, hundreds of miles away, a large gang of laborers were forthwith despatched to the scene of the disaster. When, four months later, I visited the spot, they had fished out the cars, but were still sounding for the engine with poles, which, though of immense length, were not long enough to discover the object of their search. One July morning, Mr. Howard Kennedy and the writer, thought to ford the turgid Platte at Ogallala, Neb., to one of the large cattle drives, stretching for miles over the prairie south of Ogallala. A daring fellow named Leech led us across the treacherous river, now considerably swollen by recent rains. We rode three Indian ponies, the writer bringing up the rear. The horses plunged boldly in, and were soon struggling with the down current. One-third of the way across, and the water covered our saddle-girths. Kennedy and the writer looked wistfully back, but were cheered on by Leech's assurances that there was no danger if we followed close after him. Soon I could feel my animal sinking. He made three or four steps forward, and then refused, in spite of tongue and whip-lashing, to advance further. Apparently the brute had resigned himself to going down and carrying his rider with him. To my calls for assistance, Leech quickly turned back and with a good deal of dexterous pulling and vigorous English, extracted the animal after all but ears and rump had disappeared under the water. It was a ludicrous and trying scene, but perhaps the most provoking part of all was the unconcern manifested by the animal as to whether he went over or went under. It is unnecessary to add that in recrossing the Platte we closely adhered to the instructions of Leech.

On the Upper Mississippi.—Following the Upper Mississippi northward, from the Falls of St. Anthony, there are very many picturesque and beautiful views. In coming from Brainard, on the Northern Pacific road, to St. Paul, one constantly catches sight of these views. Abandoned fortifications, dismantled forts, abrupt bluffs, miniature water-falls, afford a constant variety, while prairie and forest add to the ever shifting scene. While the train waited for some little time at a point seventy-five miles north of St. Paul, the artist accompanying the writer hastily sketched the scene presented in the illustration below.

What Makes a Boom?—It is somewhat amusing to observe in new States the solicitude expressed by settlers for good crops, not only for the crops themselves, but for the effect upon the East. For example, all over Nebraska this last autumn one could hear such expressions as, "If the frost will only hold off a few days longer we shall have a big boom in emigration," "If the corn crop holds out as well as it now promises, lots of new people will come in," etc., etc. To-day grasshoppers make a whole region of country unsalable, and send many emigrants back to the East, abandoning their "breakings" or selling them for whatever they may fetch. To-morrow good crops bring a rush of new-comers. Lands appreciate in value, and everybody is happy.



ON THE UPPER MISSISSIPPI.

Shooting from the Railroad Train.—As we drew near Glendive, on the Yellowstone, one afternoon, the carcasses of several buffalos were strewn along the railroad track. The train in advance of us had suddenly come upon a drove, and for a few moments there was a sharp fusilade from the car windows. While this kind of amusement has not been uncommon in the Territories in the past, it is now of rare occurrence. Less than ten years ago, travellers were accustomed to fire from moving trains at buffalo, in Kansas and Nebraska; now, however, they have entirely disappeared, with the exception of a very few in Western Colorado, and a small herd in the Indian Territory; there are none south of Wyoming and Montana Territories. Unless Congress immediately takes some steps to prevent the wholesale butchery of those remaining in the north, they will very soon be driven into the British Possessions. Every one who does not wish to see buffalo immediately exterminated, should write his representative at Washington on the subject.

Stacks by the Million.—In travelling through the wheat region of Minnesota, we amused ourselves in endeavoring to count the wheat stacks, appearing in rapid succession. As we whirled by one farm after another in our open car, fifteen, twenty, thirty, and even as many as forty stacks would be seen in a single inclosure, presenting indeed a novel sight to an Eastern farmer, accustomed to his single stack or more.

Hands Up and Getting the Drop.—It was the same daring Leech—referred to elsewhere—who for days tracked and followed the band of train robbers over the prairie far down to the Kansas border, after they had secured several hundred thousand dollars of Government specie. The masked robbers brought the Eastern bound train to a dead halt at Ogallala, made all the passengers throw up their hands while they rifled their baggage, secured all the gold being conveyed in the express car from the Colorado and Utah mines, and then leisurely rode off. There were no soldiers, no organized force to pursue. Leech, whose father was then keeping a tavern at Ogallala, started off after the robbers on his own hook. Day and night, like a sleuth hound, he followed the desperadoes, keeping close on their trail, and one night looked down in their camp while they divided their booty. Soon after they were surrounded and killed, and all the stolen property restored. It was a most exciting story of adventure, as Leech narrated it. A reporter of an Omaha paper, who overheard the recital in the car as Leech was returning eastward with characteristic rapidity and shrewdness, reproduced from memory in book form in a few days' time the majority of the facts, much to Leech's chagrin. "Hands Up," the title of the volume, sold to the number of fifty thousand in a short time, but with no pecuniary benefit to the hero of the hunt. A year later we suddenly came upon Leech in the large reception room of the depot at Laramie, Wyoming Territory. He was closely watching the movements of a desperate-looking fellow who, to use his own expression, was endeavoring to "Get the drop" on him. The desperado was connected with the Train

Robbers or Road Agents, as they call them at the far West, whom Leech so successfully trailed a year before. He had repeatedly stated that he should kill Leech, and he was now following him for that purpose. Several times he went around the room watching an opportunity to fire upon Leech and make his escape, but the latter faced him at every turn, and with his hand on the hilt of his revolver, prevented the would-be assassin from taking him at a disadvantage. A few months later, through Leech's efforts, the remainder of these Road Agents were captured in Elk Mountain, and one of them was suspended on a telegraph pole, at Rock Creek, by the captors, on their way back to Laramie. During the following spring Leech came on to New York, and declined all propositions of publishers to prepare a story of his frontier experiences. The last time we heard of him, he was mining in California Gulch, Colorado.

A New Model of Palace Cars.—We hear that three cars are now being constructed at Troy, New York, after a new European model, which may perhaps work quite a revolution in modes of travelling. Instead of being through the centre, the passage-way is at the side of the car. From this passage-way, doors open into the state rooms, which, with adjustable partitions, can be made to meet the requirements of any number of passengers from two to ten. During the day time, meals are served, and at night hammocks or berths are unswung. A gentleman can have his entire family with him in one of these state rooms, and eat and sleep as if at home, though of course in more limited quarters. If this new pattern of travelling cars should take with the public, a company is to be organized for their construction.

Icelanders in America.—One afternoon we came upon a settlement of Icelanders, near Marshall, Lyon County, Western Minnesota. They were represented to us as being excellent, desirable citizens. During the same day we drove past Scandinavian, French and Belgian colonies, and through two entire townships exclusively owned and settled by Low Dutch. Thus it is that peoples of all nationalities from the old world mingle together in the new, and add to the wealth and industries of the States which they populate. They speak different tongues. Their children will all unite in speaking English.

Take Care of Your Credit.—A few years ago Neodesha, beyond the Missouri, borrowed ten thousand dollars for School purposes; when the bonds became due recently, they were not honored, and we have yet to hear that they have been paid. Very great injury has been done in the past to entire regions of the West by acts of this kind. Better that the people of any State which desires emigration should club together and pay off the bonds in such a case as this, rather than that they should go unredeemed. People wonder why Eastern capitalists take three and one-half per cent. for money, when they can loan the same at seven, eight, and ten per cent. in the far West. A single case, however, of town or city repudiation, injures the credit of an entire State, and begets distrust among Eastern capitalists. Furthermore, people moving West do not care to settle in neighborhoods which do not pay their obligations.

Pierre Versus Pierre.—Less than two years ago Pierre, Dakota, was located on the Eastern bank of the Missouri River. Then came other parties who laid out the Pierre Extension, or new Pierre, on the plateau overlooking the first site. Then followed a rivalry between the old town and the new as animated in proportion as that prevailing between St. Paul and Minneapolis. When we were there last autumn the people interested in the new, assured you that the old town would be submerged whenever a heavy flood came, and the people of the old town as confidently asserted that the new town never could and never would amount to anything. Houses were being transferred bodily from one site to the other. A hotel projected on the Flats, and likewise a bank, have been removed bodily to the upper plateau, by owners whose faith is in the new town.

Arkansas Bill Dies.—Last year he repeatedly crossed from the Indian Reservation to Pierre, and fired indiscriminately at the lights in the opera house, and elsewhere. One afternoon he stopped in front of a circus tent, and discharged a half-dozen balls through the canvas. That was a little more than the citizens could put up with, and they sent word across the river to Arkansas Bill, that he never would return alive, if he ventured over again. He however defied the authorities, and again came, declaring that he'd just as soon die then, as at any time. The citizens took him at his word, and, as he touched the shore, riddled his body with seventeen bullets. He had killed a man some months before in the Black Hills, and become a desperado of the worst description. These outlaws, who have long terrorized portions of the Western Territories, are being disposed of, one after another. All the country from the Missouri to the Black Hills, once regarded as so dangerous for travel, is now comparatively safe and secure.

Chat with Readers.

PRESERVING DAHLIA ROOTS.—"*Subscriber*," Lynn, Mass.—A dry cellar, one which will keep potatoes well through the winter, will preserve Dahlia roots,

THE RED POLLED CATTLE CLUB.—"*E. R. H.*," Brooklyn The President of the Red Polled Cattle Club is Col. J. B. Mead, Randolph, Vt., who was elected to that office at the late meeting in Chicago, when the club was organized.

SUNFLOWER SEED.—"*W. G. C.*," Loretto, Pa., asks where he can procure sunflower seed in large quantities, and thinks that such poultry supplies should be advertised. Those who need this seed for horse-medicine or for poultry usually raise it themselves. Probably wholesale seed-houses can supply it by the bushel,

A DOUBLE EGG.—*J. R. Jones.*—Chanute Kans., writes us, that he found a perfectly developed, hard-shelled egg, within the albumen of another egg, which had a soft shell. The outer egg is quite as large as a turkey's egg. This is a monstrosity of not very rare occurrence. Unusually large eggs are generally double yolked, but occasionally they contain a perfect egg within them,

THE TIME TO CUT CIONS.—"*M. A. J.*," Hamilton Co., Ohio.—Cions for grafting, should be cut as soon as the trees from which they are taken are dormant. Experiments show that twigs cut for cions at the end of winter, are much less likely to succeed than those taken as soon as the leaves fall in autumn. Take advantage of the first mild spell, and cut all needed for grafting next spring. No other material is so good for preserving them as fresh sawdust. Sand will do, but it adheres to the cions, and dulls the knife.

MOUSE STAINS.—"*J. B. W.*," (no date,) asks, "how to remove mouse stains from a woollen garment." The works on scouring say nothing of this kind of stain, and our correspondent must experiment. Clear warm water will remove many stains. This is quite likely to be alkaline, and we should try a weak acid, such as vinegar, or acetic acid, much diluted. If the fabric is white, we should try, after removing all that is possible with water, bleaching, by burning sulphur matches under the spot while it is damp.

THE GERMINATION OF SEEDS.—"*H. J. D.*," Ocala, Fla. The only recorded experiments to show the time required for the germination of seeds which we now recall, are by a Frenchman, M. Appellus. Such lists are of little value, as the time is greatly influenced by temperature, the amount of moisture in the soil, and especially by the depth to which the seeds are covered. In the list referred to the time given is much longer for some seeds and a great deal shorter for others than is shown by the experience of gardeners in this country.

COMPOST AND QUACK.—"*R. B. Reynolds*," Columbia Co., N. Y., writes us that he has a large heap of compost, made up of coal ashes, which has been used in earth closets, kitchen garbage, leaves, and other materials that readily decompose. He was about to apply this compost around his fruit trees, currant bushes, etc., but was told, if he did so it would bring in, or "draw Quack," and asks if it is true. "Quack," or Couch Grass, likes a rich soil, and will not flourish on a very poor one. Whatever enriches the soil may encourage weeds, but one manure will not "draw Quack," any more than another.

BERMUDA AND JOHNSON GRASSES.—"*J. Gerhart*," Lawrence Co., Ills., asks if Johnson-grass and Bermuda-grass are the same, and if it will prevent the after use of the land for ordinary farm crops. The two grasses are about as unlike as they can be. The Johnson-grass is a coarse, tall plant, often six feet or more high, with large tuberous roots, and is raised from seed. The Bermuda grass, on the contrary, is one of the finest of grasses, rarely a foot high. It does not ripen seed in this country, but imported seed is sometimes to be had. The usual method is to cut up the clumps, and plant the cuttings. We advise our correspondent to first experiment with these Southern grasses, before planting them to any extent.

AN ADOBE BARN.—"*J. Johnson*," Marysville, Kans., is about to build a barn, and is advised to put up one of "adobe," or clay mixed with straw, and asks our opinion as to the material. In Mexico adobe is the common building material. Either large sun-dried bricks are laid, or the material is built up in frames, the same as concrete houses are constructed with us. In Nothern Mexico, houses are still standing, so old that all tradition of their building is lost. The climate there, with only a brief rainy season, greatly favors these houses. In Kansas they must contend with both rain and frost. Frost would do no harm if the adobe were dry, and it is probable that an outside coating of cement would protect the material from the rains. We shall be glad to hear from those who have tried adobe buildings in the damper northern climates.

HOW TO KEEP ASHES.—"*M. V. L.*," Erie Co., N. Y.—Where wood is the chief fuel, disastrous fires often occur from placing the ashes for future use in barrels. A coal of hard-wood, no larger than a hickory nut, will, if covered with ashes, sometimes retain its fire for weeks, so as under favoring circumstances, to start a conflagration. We have made the experiment of burying a small hickory stick partly on fire, in ashes on Wednesday, and on the following Monday, found it a mass of live coal. In cities, where they are less needed, large iron cans are sold. Every country house, if it has not a brick or other receptacle for ashes, may well have one of these heavy sheet-iron cans. Ashes are worth careful preservation for use upon the farm, and in saving them, it is well to keep in mind, that they may be exceedingly dangerous.

TROUBLED WITH RABBITS.—"*C. L. Mason*," of Wisconsin, has a farm in Florida. In order to secure a field that was not overrun with rabbits, he purchased a neighboring island, but now finds that this island breeds rabbits faster than he can get rid of them, and comes to us for advice. Are the "rabbits" one of the American hares which do not burrow, or naturalized European rabbits which make runs and nests underground? In Australia, where the true rabbit is a great pest, the most efficacious destructive agent is sulphur fumes. The sulphur is burned in a fumigator, and by means of a pump, the fumes are forced into the runs of the rabbits with deadly effect. If the rabbit in Florida is a true rabbit, it will be well to try sulphur fumes. If it is a hare, this is not practicable. We should then try strychnine, by sprinkling a few grains upon bits of sweet apples or carrots, both of which they are very fond of, and placing these in their paths.

A MACHINE FOR MEASURING DISTANCES.—*R. Butler*, Polk Co., Oregon.—The contrivance to attach to the wheel of a vehicle to record the distance travelled, is called an *Odometer*. There are several instruments of the kind, one of which we used a couple of times. It was attached to a spoke near the hub, a weight like the pendulum of a clock always hanging downward by its weight, and every revolution of the wheel, moved a wheel one notch by a ratchet on the weight. The movement of this wheel was recorded on a dial plate outside. You had then only to multiply the circumference of the wheel by the number of revolutions shown on the dial, to know the distance travelled. It acted well until loaned, when a run-away horse smashed it. This we brought from Europe, where it cost one pound, or about five dollars. We presume they are to be obtained of mathematical instrument dealers, and of some dealers in implements, at from six to ten dollars for a common measurer, and more for those of greater accuracy.—We only know of the "Institute" you inquire of, through its advertisements.

"CONTINENTAL TEA"—"NEW JERSEY TEA."—"*Mrs. L. B.*," Tuckerton, New Jersey, sends us an account of a plant growing in low swampy ground near the sea, which is gathered, dried, and used as "Continental Tea." We do not recognize the plant from her description, and request a specimen. A low shrub, *Ceanothus Americanus*, quite common in the woodlands all over the country, is known as "New Jersey Tea," and was used by our revolutionary grandmothers as a substitute for real tea, which, as Dr. Gray quaintly says, must have been a severe test of their patriotism. Some twenty years ago, it was claimed that real tea had been discovered growing in a Pennsylvania mountain. A company was formed to work up this "tea," and the stock was offered with great claims. We procured a sample of it from head-quarters, and the *American Agriculturist* showed by engravings of the leaves, that it was not real tea, but the old "New Jersey Tea," with a new name. The president of this Tea Company called on us with threats of prosecution. He was told to go ahead—We have not since heard of the law suit,—or of that Tea Co.

IMPROVING COMMON FOWLS.—"*R. L. King*," Holt Co., Mo., asks our opinion of the following. He proposes to take one hundred selected hens from the barn-yard flocks of the vicinity, and place with them four of the very best White Leghorn cocks. The eggs from these hens he proposes to sell to the farmers who keep only common poultry, at an advance over ordinary eggs, but at much less price than is asked for eggs from pure-bred fowls. Mr. E. thinks that this would bring up the standard of common fowls, and show farmers what they might expect from pure-breds. The plan is a doubtful one. The eggs he sells may produce chicks better than the common fowls, and may not. But those who buy the eggs will breed from the birds produced by them, using mongrel cocks with mongrel hens, and the result, in the second generation, is likely to be a very "mixed lot," vastly inferior to the first cross, and probably less desirable than the common fowls. The only way to surely improve ordinary barn-yard fowls is, to continue the use of a pure-bred male with each generation. By the way, twenty-five hens for one male is altogether too many. For breeding purposes ten is quite enough.

HORSE-RADISH FOR MARKET.—"*J. A. G.*," Manhattan Co., Kans. It is a mistake to treat horse-radish as one would a weed. Many plant it in some low place and let it take care of itself. Properly managed it may be a profitable crop. The secret of success is in allowing it to remain in the ground only one season. Market gardeners usually grow it as a second crop, planting it between the rows of early cabbages. English works advise planting the crowns. Our gardeners know a better way; they plant the "sets," or small roots, half an inch, or less in diameter, and six inches long. The sets can always be bought at the seed stores. They are made from the small roots when the crop is dug; cut square across at the top, and slanting at the bottom, so that in planting they may be set right end up. Those having horse-radish already in the ground should dig it the first mild spell. Some erroneously suppose it to be marketable only in spring. In the New York markets it is offered all through the cooler months, and finds buyers. After digging, cut off the side roots and pack in boxes of sand, to prevent drying up. In the markets horse-radish is sold in the grated state; the venders have very large revolving graters, which are moved by a treadle. Some of the market women use a large, very coarse hand-grater.



OUR BASKET.

Hot Water for Cabbage Worms.—Dr. Stone, Rutherford, N. J., informs us that he has applied water to his cabbages heated to the temperature recommended (160° F.), and it badly blistered the leaves of his plants, and caused many of them to turn yellow. Probably a lower temperature will kill the worms.

Gambrel or Gammon—Which?—From childhood up, we have heard and used the word "gambrel," to indicate the stick put through the hind legs of a hog to suspend it in dressing. Recently we saw written and heard the term "gammon stick" instead of gambrel. Turning to the Dictionary, we find: "GAMBREL, the hind leg of a horse," and "GAMMON, noun, the leg of a hog smoked or pickled....verb, to cure as bacon." The "gammon stick" men seem to have in this case the lexicographers on their side.

Rendering Lard.—Much lard is injured or spoiled by overheating and burning some portions; the smallest quantity scorched gives a bad flavor to the whole. A bucket of water in the rendering kettle prevents this, if the fire is kept from rising too high around the sides. The water is easily separated at the bottom if not slowly evaporated off during the rendering. Cutting the leaf, etc., fine with a sharp hatchet or cleaver facilitates the free extraction of the lard.

Home Butchering.—Some prefer to sell all their swine and buy what "hog products" they desire; but as a rule, it is preferable to kill what is needed at home, even when not necessary, as it is on a majority of farms perhaps. One then knows the healthfulness and quality of what he is eating, and with a little experience and skill, farm slaughtering is more economical. The introduction of pulleys and some other simple contrivances, enabling one or two men to handle and dress a considerable number of heavy hogs in a few hours, has, in recent years, done away with the dread and much of the importance of "butchering day."

Putting Down Pork.—Mr. Stahl writes us thus: Pack closely in the barrel, first rubbing salt well into all exposed ends of bones, and sprinkle well between each layer, using no brine until forty-eight hours after, and then let the brine be strong enough to bear an egg. After six weeks take out the hams and bacon and hang in the smoke-house. When warm weather brings danger of flies, smoke a week with hickory chips, avoiding heating the air much. If one has a dark, close smoke-house, as the writer has, the meat can hang in it all summer; otherwise pack in boxes, putting layers of sweet dry hay between. Long experience has convinced me that this method of packing is preferable to packing in dry salt or ashes.

Sausage Making.—The quality will depend largely upon the kind of meat or meats used. Cutting or grinding fine is desirable, running twice or more through the machine unless it be a better one than most of those in use. It does not pay to use "skins"; to prepare the intestines thoroughly involves much labor, and they add nothing to the substance or flavor. For early use, press the meat into cakes with the hands, and pack the rest in earthen jars, to be made into cakes as wanted for frying. For long keeping, into summer if desired, make into suitable cakes and fry; pack in jars, and fill these with melted lard. The pieces can be taken out at any time and simply warmed through; they will be as sweet and fresh as when first prepared. Don't spoil sausage meat with spices or mint. Use salt and pepper moderately, leaving every one to apply these freely in eating, as individually desired.

The Power of Roots.—Instances are not rare in which roots, by their gradual increase in size, have lifted large rocks of several tons weight. Their force, though exerted through a slight space, is nevertheless almost irresistible. In cities and villages, where the Ailanthus is planted as a shade-tree, its scattered seeds fall everywhere, and germinate where there is a little soil or dust. They often fall into areas, and the plants appear in the cracks of pavements, or they lodge in a cavity of the foundation wall, and there soon produce a young tree, which, in a few years, will be several inches in diameter. We have noticed several instances in New York City in which the roots of these young trees had already thrown the underpinning of buildings visibly out of line, and we occasionally visit a village in which the retaining wall to the terrace in front of a church is visibly disturbed from the same cause. All young trees, whether Ailanthus, elm, or others, springing up in such situations, should be removed while young, before they have caused mischief.

Lord Spencer on Irish Dairying.—In a speech at an Agricultural Show at Limerick, Lord Spencer said, that during the past ten years domestic animals had increased somewhat, and poultry aggregated nearly two million head. He thought also, that the condition of the poorer class of the people had improved; at the same time, there was enormous room in the country for still greater improvement of them, their agriculture, and live stock breeding. Strenuous efforts have been made, and quite successfully, to increase the dairy products, and better the quality of them, especially in butter. Travelling schools to go about the country have been established for teaching an improved system of dairying, and to show their benefit, the city of Cork market alone the past year had paid the farmers about fifty thousand dollars more for butter than had previously been the case. It is a great satisfaction to us to learn the above, and we hope other and still greater blessings may be in store for this heretofore unhappy country, and make it as nature designed it, one of the most productive and fortunate of the earth.

Lime for Blasting.—Every one who has slowly added water to a lump of quick-lime, to slake it, has noticed that in combining with water, the lime swells up, and becomes much larger than before. This expansion of quick-lime, when in contact with water, is a force exercised through a short distance, but, like the expansion of water in freezing, is almost irresistible. This force has lately been used in the coal-mines of England, to throw down the coal. To prepare quick-lime for use in blasting, it is first reduced to powder, and then forced into cartridges or cylinders by means of a hydraulic press. A mold two inches across and seven inches long, is filled with powdered lime, and compressed by a hydraulic press of forty-ton power into a solid mass about four inches long. When these cylinders, or cartridges, have lengthwise grooves cut in them to admit water, they are ready for use. Holes are drilled as for blasting with powder, a cylinder of compressed lime is placed in each, and tamped. A tube is provided for in the tamping, and water, by means of a force pump, is forced through the tube, and brought in contact with the lime cartridge. In slaking, the swelling of the lime throws down the coal without any smoke or the liberation of unwholesome gases, and there is no loss of time in getting rid of these. This method of blasting will no doubt find a wider application than for coal-mines.

Sylvan and Northern Hares.—Rabbits.

BY DR. G. A. STOCKWELL.

In the eastern half the United States, two species of Hares, aside from the Swamp and Water varieties, are noteworthy, viz., *Lepus sylvaticus*, which ranges from Central Michigan and Wisconsin to the Gulf of Mexico; and *Lepus Americanus*, found in the mountain ranges of Virginia and Pennsylvania, and becoming more abundant northward until it encroaches upon the domain of the Arctic species, *Lepus Glacialis*. Though both may become unmitigated nuisances, under certain conditions, yet, within proper bounds, both are desirable, affording happy sport in autumn and winter for youthful trappers and ambitious gunners. Properly prepared, they supply delicious and nourishing food for the table.

Americans are not over exact in using zoölogical terms, and quite generally call a thrush a "robin," a grouse a "partridge" or "pheasant," a colin a "quail," a stag or wapitt an "elk," an elk a "moose," a hare a "rabbit," etc.—The Rabbit is not found in North or South America, save in a domesticated form. All natives are true *hares*. —That "All rabbits are hares, but all hares are not rabbits," is true. While both belong to the *Leporidæ* family, there is a marked specific dissimilarity. The hare has fur on the soles of its feet, and hairs growing within its mouth; its young, or "leverets," are born perfect in form, amply clothed with fur, have good eyesight, and are able at once to care for themselves in a measure. Hares live in forms (a rude nest of grass or leaves) in depressions or hiding places on the ground, never burrowing beneath it.—The Rabbit, on the contrary, is always a burrower, warmth and concealment being essential for rearing their young, born, as they are, imperfectly developed, helpless, and requiring, during their infancy, careful nursing and a warm bed of fur plucked from the maternal breast. Rabbits have no hairs in the mouth or on the soles of the feet, the latter being defended by pads.

The SYLVAN HARE is usually called the "GRAY RABBIT," probably from its similarity in color and size to the wild rabbit of the Old World (*Lepus Cuniculus*). As its specific name, Sylvan, implies, it is properly an inhabitant of the forest, but it is very susceptible to the benefits of civilization, and spreads northward with the destruction of evergreen forests and the advance of husbandry. It takes especially to open scrub, to borders of cultivated fields, long grass by the sides of ditches and fences, hedge rows, slashings, rocky pastures, and deserted clearings—sometimes it resides in farmyards, hiding under barns, haystacks, wood piles, brush heaps, open stone walls, stump fences, etc. It clings to any residence once chosen, hence is often and unexpectedly found in the heart of large towns or even in the midst of new cities of rapid growth, where abundant shrubbery supplies them with needed concealment.

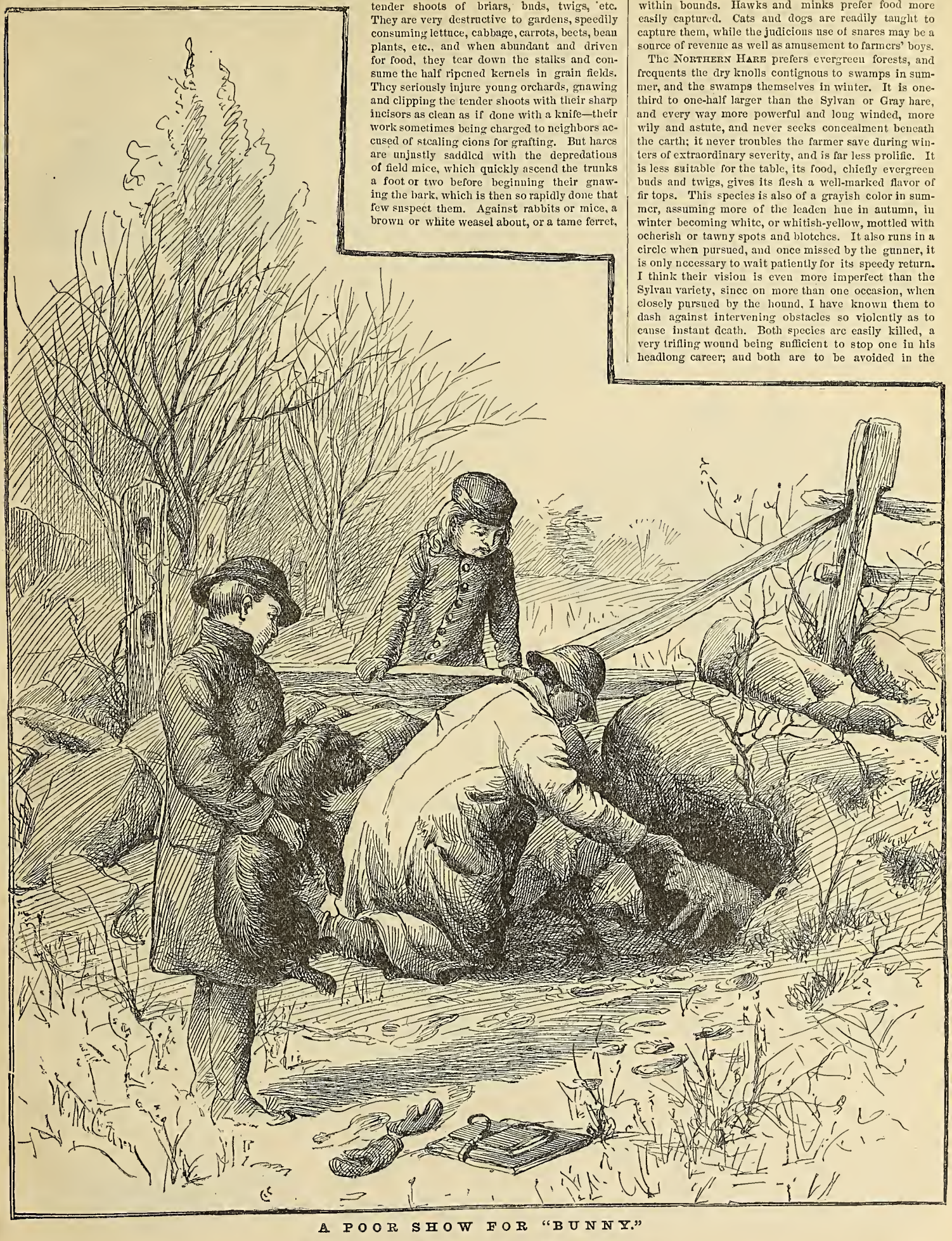
It is not gregarious; two are seldom seen together except for play. Though several may associate in the same neighborhood, or same frame, for mutual protection and concealment, each pursues its own way. They are nocturnal in habit—restless, and constantly afoot after sunset in pleasant weather, but often move about mornings and evenings, and even at mid-day when it is warm and cloudy. On warm, moonlight nights, a dozen or more are often seen romping, playing games, on a pleasant hillside or grassy knoll, frolicsome as kittens, rolling, tumbling, leaping over each other's backs. They will cover an astonishing amount of ground in a night, but always within a limited area, treading the same ground over and over. The innumerable footprints on a light snow, of even two or three of them, convey the idea that there were scores of them. Their persistent adherence to the same paths or runways makes them an easy prey to trap and snare. In cold, stormy weather, they lay up for a day or two, crouched in their pens, often covered with snow so closely that one not knowing their habits might walk near them for hours without starting one.

As indicated by their long ears, their sense of hearing is very acute; the slightest unaccustomed sound sends them to an erect position, ready to spring away in an instant. Their vision is imperfect, especially for objects in front; the backward inclination of their eyeballs would alone show that their province is to flee from foes rather than to contend with them.—A fleeing hare is always a pretty sight, its long, graceful bounds, covering eight to fourteen feet, outstripping most dogs for a short distance, but lacking in staying power. Their peculiar mode of progress is due to the extraordinary development of their hind limbs and the arrangement of the muscles on the back. The forelegs are short, slender, mere pegs to help support the body when at rest. At each leap the hind legs straddle widely, overlap the forelegs on the ground, the latter being quickly lifted out of the way for another spring. I was much amused at a novice who on first seeing a hare's track said, "The blamed thing is running backward, or else its feet are set wrong." The leaps of some hares are so instantaneous that they appear much like a rubber ball skimming and rebounding over the ground instead of leaping.

The foes of the hare are many—hawks, owls, polecats, weasels, minks, snakes, dogs, and wild and domestic cats. When attacked, it yields passively to its fate. Speed and strategy are its sole defence, and in these it lacks little. No fox is shrewder than an old buck hare, who, when pursued, doubles and twists, now turning aside to let the foe pass on, and then taking the back track, it passes leisurely through form after form of his species to break and confuse the scent. Sometimes when closely pursued he will bolt another hare, take possession of his form, trusting the dog will pursue the fleeing one, guided by his eye rather than his scent. Again, he will take to a hollow tree, and force himself up a yard or more, like a chimney sweep. A young hare usually seeks a burrow or a hollow log at the outset, and ordinarily becomes an easy prey. The doe, however, will fight like a little fury to defend her leverets, though never for her own safety. In defence of her young she has been known to attack and defeat a good-sized black or rattlesnake, leaping over and stamping him with her powerful legs until he was killed or ingloriously fled. The snake vainly strikes his fangs against her thick mantle of hair. The males fight among themselves for possession of the females, making a great fuss by stamping on the ground and leaping at one another, though seldom with more dire results than sheer exhaustion.

When wounded, suddenly seized, or frightened, the hare utters a quick, clear, sharp, wailing sound, like que-a-a-a! que-a-a-a! strikingly like a very young infant. When quite near a place where hares are playing or fighting, one may hear a low, peculiar purring sound. They also stamp the ground violently with their hind feet, producing the peculiar sound known as "drumming."

The Sylvan hare (or gray rabbit) is very prolific, rear-



A POOR SHOW FOR "BUNNY."

Drawn (by W. M. Cary) and Engraved for the American Agriculturist.

tender shoots of briars, buds, twigs, etc. They are very destructive to gardens, speedily consuming lettuce, cabbage, carrots, beets, bean plants, etc., and when abundant and driven for food, they tear down the stalks and consume the half ripened kernels in grain fields. They seriously injure young orchards, gnawing and clipping the tender shoots with their sharp incisors as clean as if done with a knife—their work sometimes being charged to neighbors accused of stealing cions for grafting. But hares are unjustly saddled with the depredations of field mice, which quickly ascend the trunks a foot or two before beginning their gnawing the bark, which is then so rapidly done that few suspect them. Against rabbits or mice, a brown or white weasel about, or a tame ferret, within bounds. Hawks and minks prefer food more easily captured. Cats and dogs are readily taught to capture them, while the judicious use of snares may be a source of revenue as well as amusement to farmers' boys.

The Northern Hare prefers evergreen forests, and frequents the dry knolls contiguous to swamps in summer, and the swamps themselves in winter. It is one-third to one-half larger than the Sylvan or Gray hare, and every way more powerful and long winded, more wily and astute, and never seeks concealment beneath the earth; it never troubles the farmer save during winters of extraordinary severity, and is far less prolific. It is less suitable for the table, its food, chiefly evergreen buds and twigs, gives its flesh a well-marked flavor of fir tops. This species is also of a grayish color in summer, assuming more of the leaden hue in autumn, in winter becoming white, or whitish-yellow, mottled with ocherish or tawny spots and blotches. It also runs in a circle when pursued, and once missed by the gunner, it is only necessary to wait patiently for its speedy return. I think their vision is even more imperfect than the Sylvan variety, since on more than one occasion, when closely pursued by the hound, I have known them to dash against intervening obstacles so violently as to cause instant death. Both species are easily killed, a very trifling wound being sufficient to stop one in his headlong career; and both are to be avoided in the spring, since they are then low in flesh, and apt to harbor disgusting parasites, especially playing the host to the larvæ of a species of œstrus, or gad-fly, that deposits its eggs beneath the skin on either side of the neck.

ing each year three to six litters of five to six leverets each. The only provision made for their young is lining the form roughly with a little dried grass. Their food embraces various fruits, grass and other herbage, the is a valuable help. The weasel is one of the best abused creatures known, and its labors in destroying mice is beyond computation, while its decided preference for young leverets greatly helps to keep the prolific rabbits

Building a Stone Fence.

A permanent stone fence should he built from four to five high, two feet wide at the base and one foot at the top, if the kind of stones available allow this construction. If a higher fence is desired, the width should be correspondingly increased. The surface of the soil along the line of the fence should be made smooth and as nearly level as possible. The hight will depend upon the situation, the animals, the smoothness of the walls (whether sheep can get foot-holds to climb over), and the character of the ground along each side. If the earth foundation be rounded up previously, sloping off to an open depression or gully, less hight will be needed. Such an elevation will furnish a dry base not heaved by frost like a wet one. Without this, or a drain along side or under the wall to keep the soil always dry, the base must be sunk deeply enough to be proof against heavy frosts which will tilt and loosen the best laid wall on wet soil. The foundation stones should be the largest; smaller stones packed between them are necessary to give firmness. The mistake is sometimes made of placing all the larger stones on the outside of the wall, filling the center



LAYING UP A STONE FENCE.

with small ones. Long bind-stones places at frequent intervals though the wall add greatly to its strength. The top of the fence is most secure when covered with larger, close-fitting, flat stones. The engraving shows a wooden frame and cords used as a guide in building a substantial stone fence. Two men can work together with mutual advantage on opposite sides of the stone wall.

The Farmer's Most Active Enemy.

PROF. S. R. THOMPSON.

This destroyer of the farmer's hard earned savings is on every farm, in every house, and never leaves us day or night, summer or winter. It damages at midnight, and destroys at noonday. The marks of its teeth may be seen on the pasture fence, it is wasting the barn sills, and pegging away at your sulky plow. Even iron and steel are not exempt from its ravages. The plow comes in from the field bright with use; next week it needs several hours of work and worry to make it scour. You lend your new bright handsaw to a neighbor, who kindly leaves it lying on the grass a night or two, and its condition when returned mars its usefulness, and lessens your faith in human nature. A careless farmer leaves his new mower in the field, or the fence corner until next summer, by which time this fell destroyer has damaged it one-third of its value. The sections are black with rust, the journals are all gummed, and the wood-work is penetrated and weakened in every part.

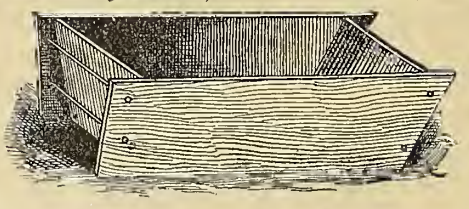
Those who have read thus far, will have recognized this enemy as rust, rot, or decay, the most active promoter of which is OXYGEN. This invisible gas forms one-fifth of the entire bulk of the air, and eight-ninths of the weight of all the water on the globe. While of the greatest value in the economy of life, it is also a destructive agent of the most untiring kind. Yet its ravages are easily checked in many instances. A thin covering of some oil will perfectly protect steel and iron from its action. A coat of paint good enough to keep water from soaking into wood, will protect it from decay almost indefinitely. In the far West, where building is somewhat more expensive than in the East, farmers are disposed to leave their farm-tools out of doors the year round. Such men are making a great mistake. If they are not able to afford shelter for their tools, they can buy a gallon of paint, which, if carefully applied to the wood-work will go a long way towards protecting it from decay. It is certain that if the farmers of any State would expend one thousand dollars for paint next year for this purpose, they would save ten thousand now likely to be utterly lost. If any one thinks this overstated, let him look around among his neighbors, and see the hundreds and hundreds of dollars' worth of machinery that is going to ruin from decay, which a little paint would prevent. Here at least in the protection of farm implements a penny saved is as good as a penny earned.

Wheat as a Staple Crop in New England.

According to the latest definite statistics (the last Census), no State exceeded Connecticut in the average yield per acre of wheat, except Colorado, where the average was twenty-two bushels, against nineteen bushels in Connecticut and about the same in Indiana, Michigan, and Wyoming Territory. Ohio came next with eighteen, Oregon, Vermont, and Illinois followed with seventeen; California and Utah with sixteen; New Hampshire, Maine, Massachusetts match Pensylvannia with fifteen; and Rhode Island equals New York with fourteen bushels. So we have all the New England States among the highest sixteen; Connecticut and Vermont among the highest eight. Colorado's exceptional large average teaches a practial lesson. It was due no doubt to the extensive irrigation secured by damming her mountain streams, and turning the waters over the dry but rich land. Two or three irrigations in addition to the natural rainfall secures almost uniformly a remunerative crop. Most of the streams of New England are so appropriated to manufacturing that we cannot expect to raise wheat largely upon irrigated acres, however profitable, though multitudes of small streams might be turned to good account. The average for the entire six New England States, nearly sixteen bushels per acre, surpassers that of rye, and the grain is worth at least a third more per bushel in the local markets. It is manifest that there is nothing in the soil or climate to prevent successful wheat growing. In the valley of the Connecticut River, wheat is grown to a considerable extent in rotation with tobacco. The small tobacco plots of one to three acres receive the bulk of the manure made on the farm and considerable additions of concentrated fertilizers, for years in succession. Wheat sown upon such land is almost uniformly successful, yielding twenty-five to thirty-five bushels to the acre, according to the fertility and fine tilth of the soil. One of the few good things that can be said of tobacco is that it compels manuring highly, and thorough cultivation, to secure a remunerative crop. The manure, the fine tilth, and freedom from weeds are just the treatment needed for successful wheat growing. The conditions can be supplied on most New England farms, and at least wheat enough be grown for the family. The soil selected should be well drained, and in good heart. A wet subsoil, where water is thrown on the surface in heavy rains, and there is much freezing and thawing in winter and spring, is death to the crop. If the soil is not rich, it must be made so, either by turning in green crops, or by applying fertilizers. A clover crop turned under is one of the best preparations for wheat. The seed-bed should be made very fine by plowing and harrowing, and part of the manure should be kept near the surface to stimulate growth before winter sets in. Clean seed, sowing while the soil is moist, etc., are important items with this crop. With suitable attention to details, wheat can be profitably grown in all New England.

Water Troughs.—Stone and Plank.

Referring to the stone tank in the November *American Agriculturist*, Mr. D. Z. Evans, Jr., Germantown, Pa., sends us a sketch (see engraving above) having the sides much inclined outward, and less likely to be broken by freezing in cold locations, whether of stone or wood. He recommends having the sides and bottom slightly grooved where they are to receive the end pieces, and edges of the base. Then before drawing together with the iron rods, which have large heads on one end and nuts and screws on the other, insert strips of good rubber in all the joints. The rubber packing, if fitting closely in all its joinings, will make tight joints, and last at least a year or two before needing renewing. For plank troughs, fit the joints closely with saw, plane and chisel, and apply in the joints before closing them, thick white lead ground in oil, which in a week or two will harden so as to prevent any leakage of water from the trough.



Barn Flooring.

BY L. D. SNOOK.

A barn floor needs to be strong to sustain heavy loads, with close fitting joints, to prevent grain, etc., dropping through. For the driveway, plank of pine,



Fig. 1.—(END VIEWS.)

hemlock, or other soft wood is preferable for the teams, as oak or other wood gives a less secure footbold. They should always be laid crosswise, not only to give a better foothold for the team,

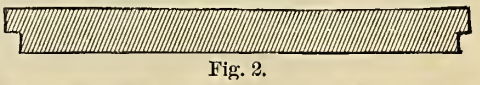


Fig. 2.

but to distribute the weight of the load over a greater number of planks. The supporting joists should never be over two feet from center to center, better only sixteen or eighteen inches. They

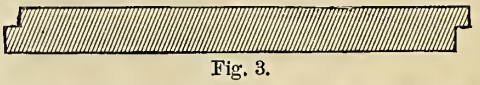


Fig. 3.

should he made as level and quite as carefully fitted as for house flooring, and not less than two inches thick; two and a half inches would be better, especially along driveways. The width depends first

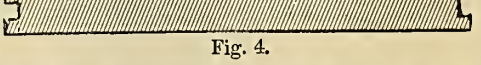


Fig. 4.

upon what is obtainable, and next upon the seasoning. If perfectly dry when laid, they may be of the full width even if two feet wide, but if not thoroughly seasoned eight inches wide will

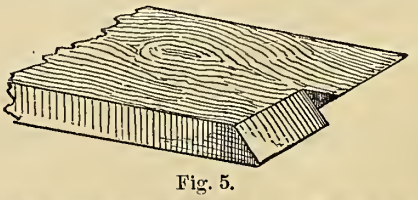


Fig. 5.

be sufficient. They should be cut a year in advance and so well seasoned as to shrink but little. The simplest way to make barn floor is to tongue and groove the plank as in figure 1;

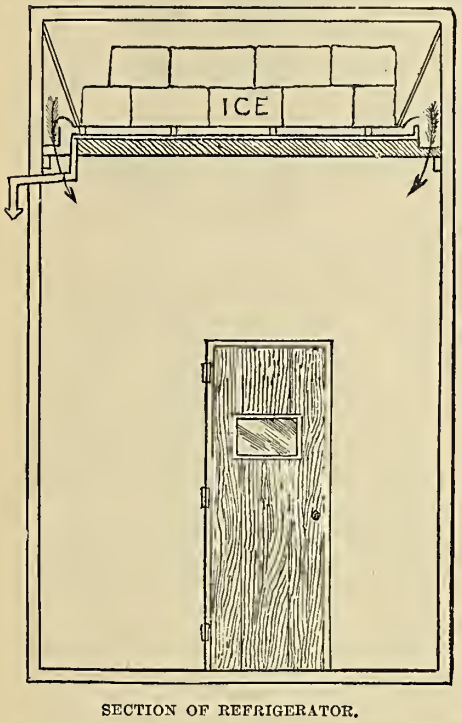
or as in figure 2, cut out the lower corner of each end of the plank half an inch back and one inch deep, and as each plank is laid, put an inch strip in the groove, the next plank fully covering the strip. You thus obtain the benefits of a grooved floor, without danger of breaking away the tongue by unequal pressure from above. Fig 3. is similar, though much cheaper, one edge of the plank simply overlaps the one below, making a firm, strong joint. In figure 4, both edges are grooved for a tongue of some hard-wood, these making a firm joint.

Where the ends of plank meet, a lock joint similar to figure 5, is quickly made, which keeps them from becoming unequally elevated. Many mechanics spike the floor down as fast as laid. but it is always best when practicable, to postpone nailing until just before fall rains, when the plank are dry and can be driven together by wooden wedges on one side. Flooring should be as free as possible from knots in the planks or other imperfections.

A Creamery Refrigerator.

BY J. N. MUNCEY, ASSISTANT IN EXPERIMEMTS. STATE AGRICULTURAL COLLEGE, AMES, IOWA.

A refrigerator was built for the Agricultural College Creamery in June. It is five feet four inches by five feet ten inches, and nine and a half feet



SECTION OF REFRIGERATOR.

high. The following is a detailed account of the cost of materials and labor at the prices current here:

600 ft. No. 2 flooring, $18.00; 152 ft. 4-in. ceiling, $1.55	$22.55
14 pieces, 2 by 4 by 20	3.75
90 ft. ⅝ clear	3.15
734 lbs. charcoal—36 7-10 bus.	6.90
Shellac varnish, for inside	6.65
16 lbs. zinc, for lower ice tray	1.60
29 lbs. galvanized iron, for upper ice tray	3.48
Nails, .70; Prepared paint, $2.00	2.70
2 lbs. No. 26 galvanized iron	.24
Mortise latch and knob	.80
2 prs. wrought iron loose pin butts	.50
2 lights glass, 14 by 20, @ 35c	.70
Tinner's work, 5 hours	1.50
97 hours carpenter work	24.25
Estimated time, painting, 10 hours	1.25
Total	$80.02

The lower tray catches the condensed water from the upper one. If there is but one tray, this water is continually dropping on the creamery floor. The zinc on the lower tray is in direct contact with the wood. The upper tray rests on inch strips, which are in direct contact with the zinc of the lower tray. The distance from the upper tray to the top of the refrigerator is two feet four inches. This leaves space enough for about one thousand three hundred pounds of ice. Charcoal is a most excellent non-conductor, and does not hasten the decay of the wood with which it is in contact. Paint would be a good substitute for shellac varnish. This, with other changes that might be made, would decrease the cost considerably. The air in the refrigerator is dry enough to keep matches for two days, after which the wood has absorbed sufficient moisture to prevent burning. From July 26 to August 14, two thousand three hundred and eighty pounds of ice were used in this refrigerator, and the average daily temperature of the air was fifty-four degrees Fahrenheit.

Summer vs. Winter Feeding of Pigs.

As feeding corn to pigs in cold weather is usually done at a loss, it is important to do as much feeding as possible in warm weather. The following experiment, made by Mr. M. L. Lester, of Lancaster Co., Neb., furnishes some interesting facts in this direction. Feb. 1st, 1882, he had ninety-five pigs, ranging from forty to one hundred and sixty lbs. in weight, averaging one hundred and three lbs. He weighed the pigs monthly, and kept an accurate account of the corn fed, with the following results:

INCREASE IN LIVE WEIGHT PER BUSHEL OF CORN FED.

February, 1882	9¼ lbs.	July	7¼ lbs.
March	11¼ lbs.	Aug. 1, to Aug 10	13 lbs.
Apr. 1, to Apr. 15	7⅜ lbs.	Aug. 11 to Nov 30,	
Apr. 16 to Apr. 30	18 lbs.	Average per m'nth	14 lbs.
May	14 lbs.	December	13 lbs.
Average for Year			11⅞ lbs.

Now note that from Feb. 1st, to April 10th, the hogs had nothing but corn, and the gain per bushel ranged from seven and two-thirds to eleven and a half lbs. per bushel of corn. April 17th they were turned on a field of rye, and for the rest of the month made eighteen pounds of pork from a bushel of corn. During May, though the sows were dropping their pigs, the gain kept up to fourteen lbs. per bushel. There was small gain in June, due to two causes. The pigs (not weighed July 1st), were pulling down the weight of their dams, and the rye had become so tough that the pigs did not eat it well. As soon as the young corn was old enough to feed, the gain per bushel rose again to a paying rate, and continued well into the winter, some time in fact after the green feed was all gone. Indeed, it is a common result that the good effect of plenty of green feed continues in the thrift of pigs, for some time after its feeding has ceased.

A Convenient Corn Pen.

We find a temporary corn pen convenient in the lot for fattening swine. This pen holds only enough corn for a few days' feeding, the corn being hauled to it from the storage pens, or directly from the field as it is needed. Our pen holds about one hundred bushels, but pens can easily be built to hold three times as much. The pen should be built in the center of the lot, with a feeding floor around it. The corn is thrown to the hogs by hand. The hogs can pass under the pen and pick up any shelled corn which may drop from above. The pen affords no harbor for rats and mice, and the corn does not gather moisture from below and mould. The air passes freely around, under and over the corn, and this soon dries it. The hogs can not get at the corn, and do not worry off their flesh reaching after cars. The pen is useful the year round, though its greatest value is during fall and winter. We have continuously used this pen in our feed lots for more than twenty years, and can highly recommend it to others.

The manner of constructing this convenient pen for feeding corn is as follows: Four forked posts are set in the ground at the corners of a square, the sides of which are nine feet long. Two poles are laid in the forks of these posts, parallel to each other, three and one-half feet from the ground. On these poles the floor of plank or rails is laid. The sides of the pen are built up of rails, like a log-house, until the pen is of the desired hight. The posts should be at least eight inches in diameter at the base, with strong forks. This is a very cheap pen, which will last until the posts, upon which it stands, rot away. J. M. S.

Good and Cheap Slat Fence.

Most trees of fair size will furnish one or more three-and-a-half to four feet cuts of good timber, straight grained enough to be worked up in a saw-mill into slats one inch thick by two or three wide, with the aid of the bench shown in figures 1 and 2. These slats can be rapidly woven into a useful and valuable fence, like that shown by the several sketches presented below.

The wire should be a little larger than that used on harvesting machines and tough like it. The bench of which fig. 1 is a side view, and fig. 2 a top view, should be about sixteen feet long and have a screw at each corner for raising and lower-

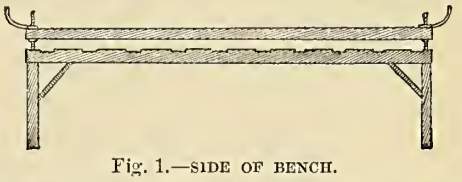


Fig. 1.—SIDE OF BENCH.

ing the holding bars. For the screws, at the ends of the frame, one-half to three-fourth-inch iron rod will answer. The wire is twisted close and tight to the slats and given two or three twists between them. If the slats are green stuff, we fasten the wire to them with small staples to prevent their slipping when they shrink. The fence is fastened to the posts with common fence staples. In building the fence shown below in figure 3, we first fasten the lower stiffening wire to the posts, then the par-

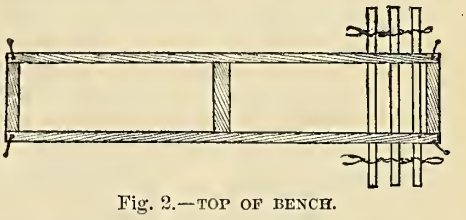


Fig. 2.—TOP OF BENCH.

cels of slat fence, and finish with the upper wire. Such a fence will last many years, and for most sections of the country is the best and cheapest combined cattle and hog fence that can be made. For a garden fence it is equal to the best picket, and at one third of the cost. By having the slats sawed about one-half-inch thick, two inches wide, and five to six feet long, it makes an excellent fence for a chicken yard, as it can be readily taken down, moved, and put up again without injuring it in the least. For this purpose a single stiffening wire near the top is all that is necessary. We have seen this

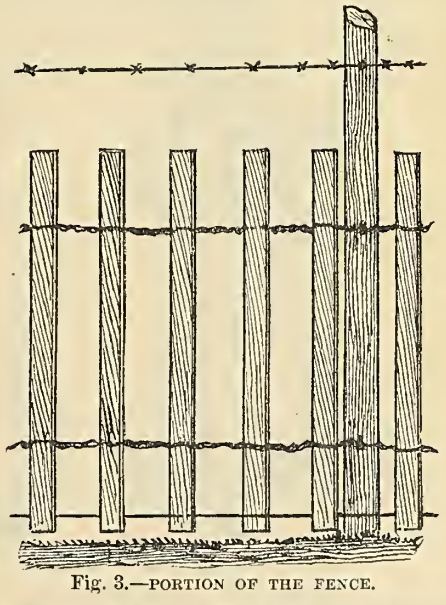


Fig. 3.—PORTION OF THE FENCE.

fence made by having one wire, generally a fence wire, running through holes bored through the slats and a smaller wire wound about them to hold them in place; but the hole in the slats is objectionable as it causes the slat to rot rapidly at that spot.



Tramps and the Farmers.

—o—

O most people there is always something humorous about a tramp. His grotesque rags, his queer shifts to protract his worthless existenee, his absolute indifferenee to all the eonventionalisms of deeent soeiety, render him a eurious objeet to people not eoming into too intimate eontaet with him. But the farmer knows the tramp to his sorrow. The vagabond, in the eity a mere earieature of humanity, provoking as mueh amusement as eontempt, is in the eountry as veritable a pest, though not quite so destruetive as loeusts, grasshoppers or potato bugs. "I'd rather see an Army-worm than a tramp," said a Long Island farmer to us last summer. "Beeause, you see, I ean kill an army-worm." He looked as if he eould have killed a tramp, too, but for his reverenee for law. Others similarly afflieted will exeuse his desperation.

Within a hundred miles arouud any great eity, the tramp most abounds. Apparently a eity produetion, he only goes upon his wanderings when his home quarters beeome too warm for him. Summer is his favorite season for travel, but in the bitterest weather speeimens of him wander over the snow-eovered land, apparently as insensible to the elements as he is to sobriety and soap and water.

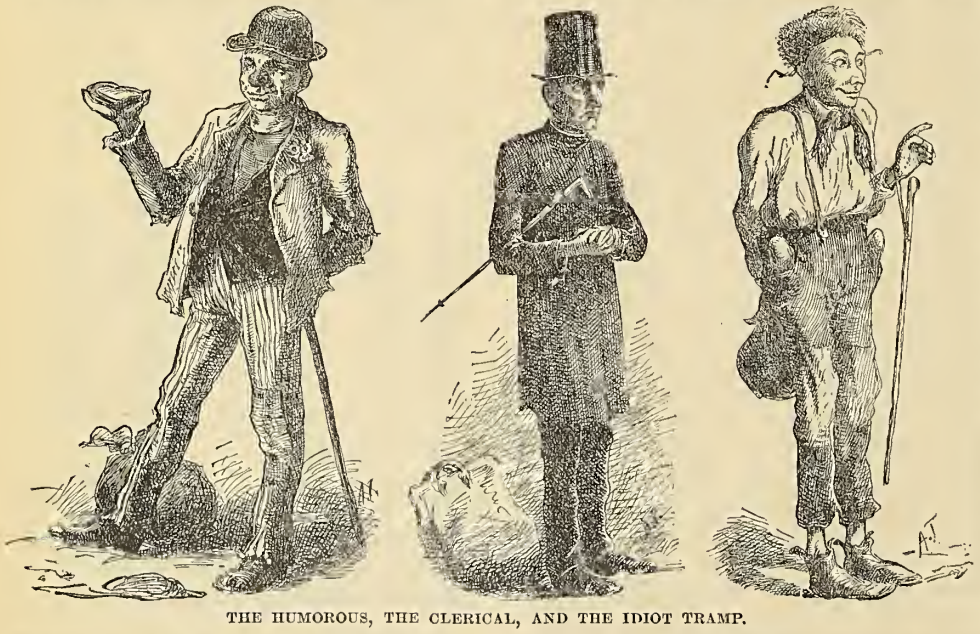
Exaetly what are his ideas of existenee, no one has ever been able to define. Although idleness and eontempt for deeeney are his own paramount virtues, he ean not regard them as virtues in others: if all others were like him he would starve. We once asked a burly tramp by the roadside, who desired to share our luneh, why he did not go to work. —"Why should I go to work?" said he; "there's so many working now that wages is getting lower every year." This fellow was a type of perhaps the least offensive elass of tramps. He belonged to the humorous order. He was plump, well-fed, and had a round, greasy face, with a perpetual smile struggling through his stubby beard, and a broad grin diselosing his tobaeeo-stained teeth. He wore the remains of a pair of very "loud" tweed pantaloons, what was left of an old hunting jaeket, and a far-gone velvet vest over an old red flannel undershirt. The ruin of a onee jaunty Derby was eoeked over his eye. A big buneh of daisies flourished in his buttonhole, and he had a bundle done up in an old bandanna. As he leaned on his stiek, and poised in his hand the sandwieh we gave him, he was a pieture of sueh self-satisfaetion, that we willingly added a dime for the privilege of sketehing him.

The Clerieal tramp is another of the less objeetionable of his kind. He has a stroug ministerial leaning in his eostume. His shiny eoat, onee blaek, pinned under his ehin, has always a dirty wisp of paper eollar visible over it—about the elosest approaeh to a shirt the elerieal tramp ever makes. His old earpet-bag looks as if it had onee held dynamite and suffered an explosion, and his eane is an old umbrella stiek. He rubs his hands together as he talks to you, his voiee a whine like that of a heggar at a London street erossing. The worst about the elerieal tramp is his hypoerisy. He would he amusing if sueh a worthless ereature did not make religion a eloak for his degradation. The humorous tramp never tells you anything about himself. He eraeks jokes and utters funny sayings, earning his bite and sup hy putting you in a good humor. But the elerieal tramp always disgusts you by unfolding a doleful history of himself, appealing to your pity, not to your good nature.

Another tramp makes the same appeal, though in a different way. The Boy tramp is one of the most painful manifestations of modern reeklessness and misery. There are altogether too many of them wandering about, gaining your eompassion and hospitality with a pitiful story of a eruel parent, and learning, in his wandering, lessons of preeoeious wiekedness, horrible to refleet upon. Bad eompanions and, more than all, bad literature, are eonstantly adding to the already large army of boy tramps.



THE BOY, THE FEMALE, AND THE RUFFIAN TRAMP.



THE HUMOROUS, THE CLERICAL, AND THE IDIOT TRAMP.

The Idiot tramp is a familiar figure in the rural distriets. Pity and amusement eombine to render him weleome almost everywhere. It is a trait of our eommon humanity that the poorest and most selfish of us have still sympathy and respeet to spare for that most dreadful afflietion to mankind.

Who does not reeall some speeimen of that most horrible of living ereatures, the Female tramp, bundled in her filthy rags, with her shameful old faee leering from under dirty gray hair, tied around with a rag of a handkerehief? Who does not know her greasy and dirt-besmeared old basket on her arm, holding always, if nothing else, a bottle. She is as revolting as the ruffian tramp is menaeing. She never hegs, not she. What she wants she asks for, and if she does not get it, it takes a thiek wall and a deaf ear to save you from her flood of objurgation.

Generally, it is probahly safe to assume that all tramps are thieves. The lives they live do not tend to render them partieularly sensitive to moral admonitions from within, when they see a full elothesline or a stray fowl near their stick. Their extensive depredations often fall on those least able to sustain them. They eost the farmer and his wife many a dollar's loss, and in many a way.

But the Ruffian tramp is the only one really dangerous to the person and poeket of the eommunity. He exists in every variety. You find him big and brutal, little and sneaking, bullying or sullen, aeeording to his temperament. But in all eases he is a depraved, vieious seoundrel, absolutely with no redeeming trait, and of whom the earth would be well rid. This misereant has reeently so inereased in numbers and in insolenee that he has beeome a perfeet eurse upon rural eommunities. In eertain seetions these modern handits eamp in squadrons, and levy on the neighborhood for supplies, like an army in an enemy's eountry. Not eontent with this, they wantonly destroy what they eannot use. A terror to women and ehildren, a burden on men who labor honestly for their livings, an outrage on soeiety itself, their existenee ean only be regarded like that of all ereatures of prey as one of the inserutible mysteries of nature.

THERE are two things of whieh the gardener rarely has an exeess—leaves and manure—the former often helping to inerease the quantity of the latter. For eovering plants of all kinds during the winter, leaves, nature's own eovering, are espeeially fitted. A hot bed is mueh more lasting and more under eontrol, if the manure is mixed with one-third or one half its bulk of leaves. Used as hedding for horse or eow, they absorb the liquids, and when they are added to the manure heap, they soon deeompose and inerease its value. It is well to gather the leaves from the lawn and road-sides as they fall, before they are seattered by the winds. Those in the woods may be left until later.

Hoose in Calves, Etc.

BY PROF. D. D. SLADE, M. D., V. S., HARVARD UNIVERSITY, CAMBRIDGE, MASS.

Mr. J. Hodson, writing from Marshfield, Coos Co., Oregon, under date of Oct. 13, 1883, asks the opinion of the *American Agriculturist* in regard to the nature and treatment of a disease which has attacked the calves upon Coos River, proving very fatal upon some farms, notably on that of Mr. N. Small, where sixty-three out of sixty-five calves were attacked. He says the symptoms are as follows: "The calf will get up and cough and appear very tired, will gasp for breath, run its tongue out and low and moan in great distress; running down in flesh all the time, and dying in from ten to fourteen days. Upon post mortem examination by doctors here, thousands of white worms an inch or so in length were found in the bronchial tubes and their branches into the lungs."

The disease in question is recognized under various names, as Hoose, Husa, Verminous Bronchitis, etc., and is due to the presence of innumerable white worms from one-half inch to three inches in length, an animal parasite known by naturalists as the *Strongylus micrurus*. These particular internal parasites are long, slender, cylindrical in shape, with heads in some of the orders armed with hooks or spines. They infest the bodies of the sheep, goat, calf, horse, ass, mule, pig, and even birds. They inhabit the air passages and lungs, as also the digestive organs, and may be reproduced either within or without the body. In the first case the female worm gets access to an air cell, where, becoming encysted, it produces eggs; the young worms from there creep into neighboring air cells, mature, and in time reproduce their kind. In the second case the impregnated female being expelled from the air passages by the coughing, falls either upon the ground or into water, dies, and the eggs remain for an indefinite period, until under favorable circumstances they are taken up with the food or water into the body of a suitable host, either as eggs or as minute worms. These are then conveyed by the circulation of the blood from the stomach and intestines, and are deposited in the tissues of the lungs, whence, after a certain period, they pierce a passage into the bronchial tubes. While occupying the lung tissue, they are incased in small masses which appear like chalky matter, and which the microscope shows to be deposits of the eggs and young worms. The presence of these bodies create an irritation, and give rise to an inflammation of the lung tissue, resembling the disease known as lung fever or pneumonia. When the worms are present in the air passages, they create constant irritation, and violent coughing is induced, during which the parasites are often expelled in masses with the mucus. The symptoms of the disease which first call attention are, the slight husky cough at irregular intervals, the dry and loose coat, the loss of appetite and want of energy, and gradual emaciation. The cough soon becomes more troublesome and even at times suffocating, with the expectoration of mucus and worms. The animal grows weaker, the skin becomes hide-bound, various dropsical swellings may occur, and great constitutional disturbances arise, terminating fatally in ten to fifteen days. Intestinal parasites may also at the same time co-exist, and produce diarrhœa, and grave disturbances of the bowels of the infested animal.

As prevention is better than cure it is highly important that this parasitical disease should be stamped out in newly infested countries, which may be done by the separation of the affected animals, by their continuous medical treatment, and by the burning or very deep interment of the bodies that die from it. No calves or foals should be pastured on lands which have been occupied by older stock of the same kind, nor should they have access to the same food or water. Drain the infected lands where possible, and make no use of any fodder, grain or other produce from such localities, for cattle, horses or mules. Any animals that have been exposed must have a liberal diet, including dry grain, roots, etc., plenty of salt, and must be carefully watched for the first symptoms of the disease. To destroy the lung parasites, bring the affected animals together in a close building, and subject them to the fumes of the flowers of sulphur thrown in small quantity at a time upon a heated shovel or iron plate, or by means of any simple apparatus, until the chamber is as much charged with the fumes as the animals can bear without too severe coughing. This should be done for several days in succession, and at intervals afterwards as long as there is any suspicion of the presence of the parasites, and should be kept up for twenty minutes to half an hour. Of course the affected ones are not to mingle with others, or go into new pastures which they might infect. A liberal and nutritious diet is necessary, to which may be added vegetable and ferruginous tonics, such as powdered gentian, sulphate of iron, etc. The intestinal parasites may be destroyed by giving the animal infested with them a tablespoonful of oil of turpentine in gruel or milk in the morning before feeding.



THE TRAMPS "IN CLOVER." — (*See page* 20.)

Drawn (by Alfred Trumble,) and Engraved for the American Agriculturist.

Two New Blackberries—"Early Cluster," "Wilson Junior."

It is several years since any varieties of real value have been added to our list of improved blackberries; but this year brings us two new ones, which promise to be of great importance to fruit growers. Early in June last, John S. Collins, of Moorestown, N. J., sent us specimens of the "Early Cluster" Blackberry. Through the negleet of the expressmen, these arrived in a condition unfit for testing, and only allowing us to judge of their size and shape. Like most of our cultivated blackberries, this was an accidental seedling. The claims made for the Early Cluster are: healthfulness and vigor of plant, great produetiveness, carliness, and superior quality. The absence of double and imperfeet flowers, common in the "Early Wilson" and some others, allowing each flower to produee a berry, eonduces to its bearing qualities. The discoverer states that from a single stool, thirteen quarts of berries were taken at one picking. The engraving represents the size of the berry, which does not average quite so large as the "Early Wilson," but is of much better quality, on account of the absence of a hard core. The "Early Cluster" is being planted largely for market, and it promises to be a valuable berry.

The choiee blackberries are so generally aecidental seedlings, that it is a novelty to find an exception. William Parry, Parry, N. J., has for many years experimented in growing blackberries from seed. Being a firm believer in the value of inherited good qualities, or "pedigree," in fruits as well as in trotting horses and butter-making cows, he seleeted the finest and largest berries from the healthiest and most productive plants of the "Wilson Early," which he regarded as the best variety then known. Out of hundreds of seedlings, one was seleeted as the most desirable to propagate, and this is known as "Wilson Junior." It is claimed that this seedling has all the good qualities of its parent, to which others are added. The size is unusual,



THE "WILSON JUNIOR" BLACKBERRY.

selected berries measuring three and a quarter inches around at their smallest diameter, or crosswise. It is also claimed to be earlier, more productive, sweet as soon as black, to carry well, and to hold its bright color an unusually long time.

The blackberry has now beeome such an important market fruit, that we welcome with interest any variety which promises to be an improvement upon the established kinds. Of course with these, as with all new fruits that we have not been able to cultivate and test, we give the claims of those interested in their production. In these instances, both parties have been largely engaged in growing fruit, are thoroughly acquainted with the requirements of a market fruit, and they of course know, as few others can, in what respects the old varieties fell short of being perfeet market berries.



THE "EARLY CLUSTER" BLACKBERRY.

Keeping Apples in Winter.

It is one thing to raise fair, sound, winter apples of the best varieties, and quite another to keep them so that they will come out in April as crisp and toothsome as in mid-winter. And it is not too late to attend to those still kept in the cellar or elsewhere. To be sure of soundness, with no worm inside, or bloteh upon the skin, is a prime neeessity for good and long preservation. A fruit room of course will keep them well, other conditions being all right, but the average farmer who sold all his surplus apples in autumn, and only wants a few barrels for his dessert and evening callers, has no suitable plaee but his cellar, and his handiest vessel is the second-hand barrel. Let the barrel then be sound, with two good heads and perfectly clean—nothing upon the inside to start rot. At the last assorting remove every defective and bruised apple for early use, and leave no hole or crack in the headed barrel. This helps to preserve an even temperature. If kept in a cellar, let the barrel rest upon the bilge, and not upon the head, and keep dry. The cellar should have a door or window, opening easily to give more or less air, according to the outer temperature. With this convenience and a thermometer, one can keep the temperature between thirty-two and forty degrees, and have fine apples in spring. Nothing but watching them faithfully will do it.

A CELLAR without a furnace, is an important adjunct to a garden, as it allows a number of half hardy plants to be kept over the winter. But those in the cellar must not be entirely neglected. They are liable to suffer from a too moist atmosphere, which may cause the stems to become mouldy, or the earth in the pots may become so dry that the roots will shrivel and perish. The first trouble, the moist air, may be avoided by ventilating on mild days. For excessive dryness, of course water is the remedy. The pots, especially towards spring, should be examined occasionally, and those in danger of becoming "killing dry," sparingly supplied with water.

"Kill-Calf." (*Leucothoë racemosa.*)

Several of our native shrubs have the reputation of being poisonous to domestic animals. These do not belong to plant families known to be poisonous, nor are they injurious to man, yet the testimony as to their deleterious effects upon animals is too general to be ignored. The poisonous effects of the Low Laurel (*Kalmia angustifolia*) are so extensively recognized as to give it the common names, "Sheep Laurel" and "Lambkill;" and the "Mountain Laurel" (*Kalmia latifolia*) has a similar reputation. In parts of New Jersey, another shrub of the same family with the Laurels is called "Kill-



THE "KILL-CALF."

calf," on account of its effects upon calves that eat it. Mrs. L. Blackman, of Burlington Co., N. J., writes us: "I have seen many a poor calf roll up its eyes and die in consequence of having eaten 'Kill-calf,' which is a deadly poison." The plant with this unpleasant reputation is one of our most ornamental native shrubs, *Leucothoë racemosa*. It was formerly called *Andromeda racemosa*, but when, for good botanical reasons, the large genus, *Andromeda*, was divided, this fell to *Leucothoë*, a name from ancient mythology. The shrub has a general resemblance to a high huckleberry bush, usually four to six feet high, but sometimes reaching ten feet. The engraving shows the shape of its decid-

uous leaves, and its strikingly beautiful clusters of flowers. These clusters, which terminate the small branches, have pure white flowers, pointing directly downwards. So regular are the flowers, that they have been compared to rows of teeth. It blooms in June, and is common near the coast, from Massachusetts southward. As an ornamental shrub, it has positive merits and is worthy of a place among the choice exotics. Its poisonous effects upon calves are not mentioned in the books, but seem to be well recognized by the farmers of New Jersey. Mrs. B. states that among farmers in her vicinity the common remedy for calves is warm milk, sweetened with molasses. This usually causes the animal to vomit, and it is relieved. Our correspondent thinks that lambs sometimes eat the "Kill-calf," when it is certain death to them. The subject of animal poisoning is an important one to farmers, and we shall be glad of any testimony bearing upon the delcterious qualities of any plants.

The Hornbeam and Ironwood.

When a farmer's boy at the wood-pile comes across a stick which resists his efforts to split it, he throws it aside, with the epithet, "Hornbeam." He may be right, or may not, as there are other woods equally difficult to split. The term "Hornbeam," is applied to two very different trees. One, closely related to the European tree of that name, is properly called Horubeam; the other should be known as Hop Hornbeam, or Ironwood. Both are related to the Beech and Oak, though differing in their fruit. The Hornbeam (*Carpinus Americana*,) frequently called "Blue Beech," especially in the Western States, is often scarcely more than a large shrub, though occasionally rising to thirty feet. Its close gray bark somewhat resembles that of the Beech; the tree is readily recognized by its ridged or fluted trunk, which is unlike that of any other of our native trees. As in the Beech, the sterile and fertile flowers are in different clusters. The sterile flowers in drooping catkins, soon fall away; the fertile ones form fruit like that shown in the engraving. A little nut is at the base of a leafy bract. The engraving also gives the shape of the leaves. The wood of the Hornbeam is white, very hard, and close-grained, and on account of its toughness is used for beetles, levers, or wherever a very serviceable wood is required; it is sometimes used for hoops. The nearly related European Hornbeam makes a useful screen or wind-break, and the American species would no doubt serve for the same purpose. The Hop Hornbeam or Ironwood, (*Ostrya Virginica*) is often confounded with the preceding. It is a larger tree, forty feet high or more, with leaves much like those of the Black Birch, and its fruit in catkins closely resembles those of the hop, whence its most common name, Hop Hornbeam. These clusters, sometimes three inches long, with the appearance of a hop, consist of closed bags, each of which contains a little nut. The tree is found from Canada, far southward, and is known in different localities as "Lever-wood," "Ironwood," and among the French settlers in Canada, is *Boisdur*, or "Hard-wood." The wood is very white, compact and heavy, and is used for beetles, mallets, and in mill machinery. The tree has merits which commend it for ornamental planting, on account of its light and graceful spray.

Why Not More Chrysanthemums?

For some reason Chrysanthemums have not acquired the popularity in this country which they have abroad. They have much to commend them in their great variety in size, form and color, ease of culture, and in their coming at a time when most other flowers have gone into winter quarters. In England, nearly every large town has its special Chrysanthemum show, held usually by a society devoted solely to the culture and exhibition of this flower. The New York Horticultural Society did well to hold a special Chrysantbemum exhibition in October last, as it served to show what a great variety is now presented by the forms of this one flower. As an indication of its increasing popularity, we notice that florists offer, and ladies wear upon the street, "corsage bouquets" of the Chrysanthemum, which, by the way, are sometimes more noticeable for size than for tasteful arrangement. We now refer solely to the perennial or Chinese Chrysanthemum (*C. Indicum*), and not to the annual kinds, which are not without their beauty, and are much earlier. There are three very distinct sets or classes of the Chinese Chrysanthemum, though European florists make several more. The Large-flowered, the Small-flowered or Pompon, and the Japanese, are each very distinct. They present a great variety of color, from pure white to dark purple and brownish red. Chrysanthemums may be treated as hardy border plants, but they are so late in flowering, that in most seasons a killing frost cuts them off before they have shown their full beauty. To thoroughly enjoy them, they should be potted for the window or the green-house, where their bloom may be greatly prolonged. To begin their cultivation, procure plants of a florist in the spring, and plant them out in good soil. If they make many stems, thin to four or six, and when they begin to show buds, pot the plants, shading them for a few days until they recover, and do not take them into the house until there is danger of severe frost. A window in a room without fire will greatly prolong the season of bloom. When their beauty is past, cut back the stems and place the pots in the cellar, where the earth should not become too dry. Those who exhibit Chrysanthemums, train them in various forms, tree-like, pyramidal, and tabular. The plant readily yields itself to the cutting and pinching necessary to produce these specimens. Specially large exhibition flowers are produced by growing a plant to a single stem, and allowing this to bear but two or three flowers, all the other buds being removed. In producing the trained specimens, the pinching back must be done while the plant is making its growth, and the desired form given before the buds appear. When the Chrysanthemum is grown in the open garden and allowed to flower there, it should be tied to stakes, as the stems are very brittle and are liable to be broken by winds. The fine varieties are so numerous that we make no attempt to give a list. In commencing their culture, it will be safe to trust to the judgment of a reliable florist to make a selection of varieties.



THE HORNBEAM (*Carpinus Americana*).



THE HOP HORNBEAM (*Ostrya Virginica*).

MOUNTAIN ASH BERRIES are very showy, and would be of great use in holiday decoration, were they not ripe and away long before winter. If gathered when ripe, they shrivel and become discovered long before they are wanted for use. A correspondent of "The Garden" (Eng.) says, they may be preserved in perfection, if the clusters are covered with strong brine. Stick a pin here, and try it next autumn, not only on the berries of the Mountain Ash, but on a number of other brilliant and perishable fruits. Let us pickle the berries.

THE SNOWBALL ABUTILON.—Now and then there turns up a flowering plant that is, in its way, what the Concord is among grapes. If one has a plant, it is sure to give returns, and in abundance. The Snowball Abutilon (*Boule de Neige*), is one of the thoroughly reliable plants; whether it be six inches or six feet high, it will give flowers. It is easily propagated, and, so far as we have observed, has no whims or miffs. Though we have not tried it, we are quite sure, from its behavior in a very cool greenhouse, that it will prove useful in window-culture. Every florist can now supply the plant.



A Neat Book Covering.

For one's own use, or as a present for a grown-up brother, cousin, or friend, a neat book covering is made of good linen canvas. It is cut out as shown in fig. 1. Fourteen inches by ten will fit a good-sized book, and is not too large to be used on a small one. The edges of the cover are bound with narrow ribbon. A small pattern is worked in each corner, and an initial on the front, as in fig.

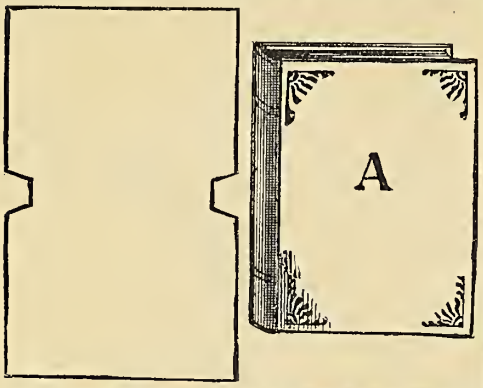


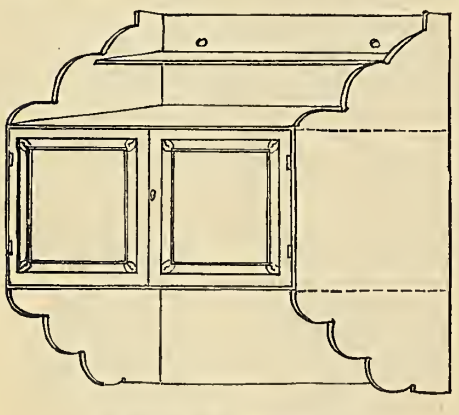
Fig. 1. THE PATTERN. Fig. 2. THE BOOK COVERED.

2. The cover is held in place by sewing the corners after folding to fit the book. After completion it can be put on, or changed to another book, by bending the covers back to slip it on and off.

A Hanging Medicine Cabinet.

BY D. Z. EVANS, JR.

In every country home where there is no drug store "just around the corner," more or less medicines are necessarily kept, and it is important to have them out of the reach of children. The writer has a cabinet like the illustration, hung on stout iron pegs, so high up that a child cannot get at it, and a lock and key is a still further security. It may be made of oak, walnut, or ash, one-half to



A PLACE FOR MEDICINES.

three-quarter-inch thick, with doors of three-quarter-inch. Ours is of ash, rubbed down, a good "filler" applied, and then varnished. It is quite ornamental as well as useful. The back is three feet long and eighteen inches wide, the square case occupying its middle being eighteen by eighteen by eighteen inches. A narrow shelf above, against the back, being little exposed, can be of pine if necessary. The shelves inside the cabinet may be arranged with spaces of eight, six and four inches for bottles and packages of different hights. For the side pieces make a pattern of pasteboard or thick paper, and cut in the form shown in the engraving, or any other pattern desired. We always keep a good supply of simple remedies, all carefully labelled, and the dose plainly marked on the label pasted on each package and bottle: and to make "assurance doubly sure," a marked tag is tied to each package. This cabinet and its contents has saved us many a dollar for doctor's bills, and many a nocturnal excursion to call a physician.—[A less deep case and one of larger dimensions if needed, would project less into the room; and the bottles, etc., if arranged on narrower shelves inside, would be more conveniently accessible.—ED.]

How to Starch and Iron.

Every housekeeper knows the difficulty of starching and ironing shirt bosoms, collars and cuffs satisfactorily. When done at a laundry they have a glossy finish which both improves their appearance, and prevents their getting soiled readily. To give a fine gloss to linen, a good quality of starch must be used. It is best to get it by the box of six pounds or more, as it comes cheaper and is always at hand. The empty box is useful for other purposes. I have read of many additions to starch to give a gloss, such as white wax, spermaceti, and gum arabic, and have tried them all, but find them of no advantage if good starch is used. Gum arabic with cold starch sometimes makes the linen stiff. Mix the quanity of starch required with cold water to about the consistency of thin cream, then pour on boiling water and stir briskly. Make quite thick and keep over a good fire stirring all the time. Boil until clear, and some minutes longer to be sure that it is well cooked; (some think a little lard or butter added prevents the iron from sticking.) As soon as it has cooled enough not to burn the hands, take the linen, previously well washed and rinsed, and with the fingers rub the starch well into it and slap together. Continue this until the linen has taken all the starch it will hold. Then smooth with the fingers carefully, taking out all the wrinkles, with a clean damp cloth remove all the specks of starch from the smooth surface, and hang up to dry where no particles of dirt are floating. If hung out of doors when the wind blows it will take out a part of the starch. When dry, immerse the linen quickly in hot water, and roll up in a clean dry cloth. Usually it will be ready to iron in ten to fifteen minutes. Some dip the linen when dry in cold water containing a little starch dissolved, and then roll up. This requires time for the articles to become dry enough to iron well. When a collar, for instance, is ready to iron, lay a clean cloth on the cover of the ironing board, and place on it the collar with the outside down and apply an iron not too hot, lifting the collar up every time the iron passes over it to allow the steam to escape and to prevent its sticking to the cloth. While yet damp turn the collar outside up and iron once or twice, or until nearly dry (bearing in mind not to have the iron too hot); when removed to a bosom board made of hard-wood without covering, place on a bare table with polishing iron well heated, but not too hot, and go over the collar putting on all the pressure that you can, but not too slowly or it may scorch. Should the linen get too dry to receive a good polish, dampen evenly with a wet cloth. Much of the success in securing a good polish on linen, depends upon the pressure put upon it while damp, and having underneath it a hard board. A good polishing iron is essential. The one that gives me the most satisfaction costs 62½ cents. Doubtless there are others equally as good. M. M. S.

Good Apple Pudding.—A correspondent, with other recipes, sends us the following directions for a pudding which "eats well": Mix with each pint of sweet milk three beaten eggs, a tablespoonful of butter rubbed into a part of the flour, also a teaspoonful of baking powder and a saltspoonful of salt; then stir in enough more flour to make a stiff batter. Have the apples pared and sliced, as for pies, and placed in a deep dish; pour the batter over the apples as thickly as it is desired, and bake as one would apple pies.

SAUCE for the above: One cup of butter, two cups of sugar mixed with the whites of two eggs beaten to a stiff froth. Cut the pudding in square pieces, serving with the crust downward on the dish and the sauce poured over the top.

A Match Strike.

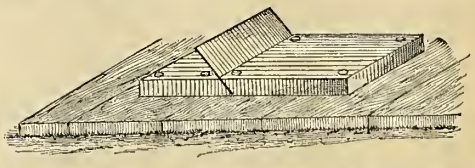
One or more pieces of sand-paper should always be provided in a conveniently accessible place in every room, and thus save the temptation to mark walls or furniture. A unique and tasteful match-strike is shown in the engraving. It may be made on a base of thick card, or on one of the round pasteboard plaques about three inches in diameter, obtainable at any book store for a few cents. A picture of a dog's head or a group of Kate Green-



away children, or of a variety of other things, is painted on the plaque. A piece of sand-paper is cut the exact size of the plaque, and the two are glued together, a loop of narrow ribbon having first been placed between. Such match strikes, when hung on the gas fixture, the edge of the mantel, or beside the table, are useful and ornamental. M. E. R.

Home-made Boot Scrapers.

"T. F. D.," Galesburg, Ill., sends us a sketch of a simple and ingenious scraper for cleaning boots or shoes at the door. Neat housekeepers will appreciate every help of this kind. The materials are an old hoe-blade, eight screws, and two blocks of wood. The scraper is fastened firmly to the edge of the board walk, near a side door, and leaves no excuse for any one entering the house



with muddy boots. The engraving shows the shape and position of each part.—Another form of scraper is made of a broken iron rake. Holes to correspond with the teeth are started in the end of the door-step with a gimblet, and the teeth driven into these about an inch, leaving the smooth top of the head-piece of the rake for a scraper.

Chickens Fried with Rice.—Cut up two or three fine young chickens, and half fry them. Boil half a pint of rice in a quart of water, leaving the grains distinct, but not too dry, and stir into it a large tablespoonful of butter while still hot. Beat five eggs well into the rice with a little salt, pepper, and nutmeg if liked. Put the chickens into a deep dish and cover with the rice. Brown in an oven not too hot, and you will have a most excellent dish ready for the table.

Wooden Fruit Knives, etc.

Those who can afford it and do have the silver or plated fruit knives now common, need not read



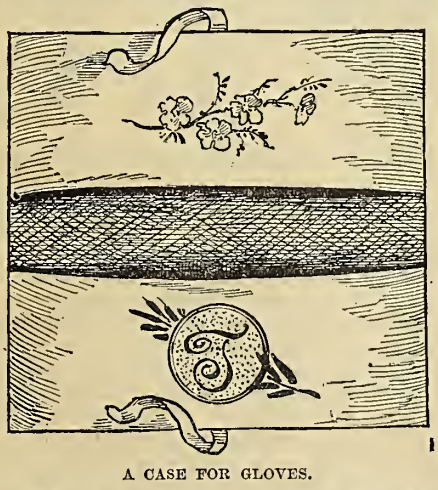
A WOODEN KNIFE.

this. Any unplated steel knife is blackened by the acids of fruits, but housekeepers prefer a sharp steel knife for paring apples, pears, peaches, etc., and cleaning it before it rusts, to using the duller, thick-edged plated knives. And, by the way, the modern silver-plated knives are to be charged with no little dispepsia and indigestion; they are too nice to be sharpened, and so the stomach is taxed with wearing down large pieces of tough meats which ought to be cut fine with a good old-fashioned sharp steel blade. Such meats none but the best molars can reduce to a proper condition for dissolving in the gastric juices, even if, in our fast eating age, the owner of such teeth stops to use them, which, unfortunately very few will ever do.

Men folks who pare fruits, and whose incisors, if they have them, do not easily break into the side of a large hard apple, resort to the pocket knife. But it goes against the grain to cut fruit with a blade which has just cleaned a hoof, skinned an animal, and often been used for other unclean operations. Here is a remedy. Any bit of hard wood whittled to a sharp edge, in half a minute, will pare and cut an apple, however hard, almost as well as a steel blade. It can be thrown away, or easily washed, or cleaned by taking off an extra shaving, and when dulled be sharpened in the same way. The sketch shows an extempore knife made of a stick from the kindling wood box, with three strokes of a pocket jack-knife, and in ten seconds. It has pared, cut and cored a number of quite hard apples very effectually. Boys, or men, can quickly "whittle" out a stock of them in quite artistic forms—say for evening use, when the fine toothsome apples and nuts go merrily round.

A Glove Case.

A convenient article, and one easily made, is shown open in the engraving. It is simply a piece of plush twelve inches square, on which are sewed two pockets of silk or plush of a contrasting shade. The outside of the case is plain, but on one pocket is embroidered a spray of flowers, and on the other the initial letter of the last name of the person for whom intended. The edge of the pockets and the case is finished with a silk cord. Ribbons are sewed to the front for tying it when closed. One ribbon



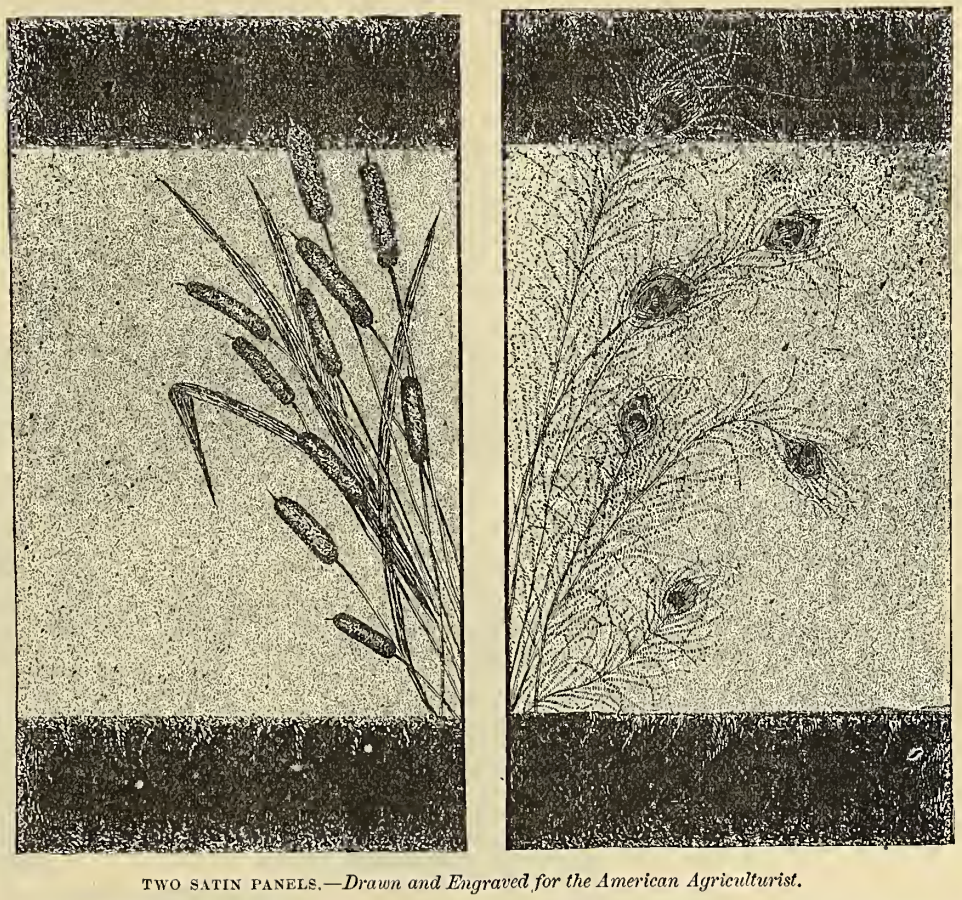
A CASE FOR GLOVES.

should be the same shade as the outside of the case, and the others the shade of the pockets.

Sally Lunn.—Break one or two eggs into a tea-cup of milk, sweet or sour, (sweet is best); add a table spoonful of lard, and two tea spoonfuls of sugar; beat all well together with one pint of flour. If the batter is not quite thin, add a gill of cold water, which will keep the bread from being tough. After thorough stirring, add two tablespoonfuls of lively yeast, beat a little more, and set to rise from eleven to four o'clock. When ready for the second rising, stir in another pint of sifted flour, in which is mixed a teaspoonful of salt. When light enough, bake an hour. One pound cake-molds are generally used for baking the Sally Lunn. Turkish turbans molds, made either of tin or earthen-ware, are pretty.

Satin Panels.

Panels being so much used now, are made of almost every kind of material. They seem to fill spaces in some rooms where nothing else would look as well. The pair here described are handsome and inexpensive. They are made of light blue satin and garnet plush, one having natural peacock feathers for decoration, and the other cat-tails and pressed leaves. The materials needed for a pair are one yard of light blue satin, three-quarters of a yard of garnet plush, some thin pasteboard, dark paper muslin, and the feathers, cat-tails and leaves. For the foundation use a piece of pasteboard twenty-nine inches long and fifteen wide, and baste the satin on, leaving the space at the top and bottom to be covered with the plush which is blind-stitched on. Then fasten the feathers, cat-tails, etc., in place and finish the back by basting the muslin over it to protect it. E. S. W.



TWO SATIN PANELS.—*Drawn and Engraved for the American Agriculturist.*

Hints for Dress.

Only a few years ago the question of how to have a dress made was very difficult to decide, and ladies often spent hours in consultation with their dressmaker. She would open her bag of newspaper patterns and show from which of these Mrs. A. or Miss C. had their last new dresses made, or what Cousin Julia, who "dresses so stylishly," wore when she called. The result would probably be a selection of something whose effect could only be guessed at. Now, scores of Fashion Journals are published with illustrations of every garment in a ladies' wardrobe, so distinct and of such variety that one can see just how it will look when finished and suit her own taste. The pattern selected and ordered will be sent at once to any part of the country. The bust measure should always be sent. This is taken by passing a tape measure just under the arms and bringing it together a little tightly in front. Some of these patterns are pinned together so that a lady of ordinary skill can make her own and her children's dresses in the styles prevailing in the large cities, which are supposed to lead the fashions for the country. Ready-made dresses, and polonaises are now found in nearly all the large stores. These at first were not received with favor, as it was not supposed they would fit unless cut especially for the person who would wear them. But the art of cutting by measure is now so nearly perfected that ladies often find dresses needing no alteration and costing less than buying the material and having them made. They are of all grades, from shilling prints to the richest silks and velvets. They are described and illustrated, and the price given in the catalogues issued by these houses.

It has been said that a true lady is known by the fit of her gloves and boots. This we do not accept as the rule, for many a real lady would take nothing from the scanty purse for choice fitting gloves and would put on her weary feet only such shoes as are large and easy. Still a refined taste would not choose such, and the whole selection of a lady's underwear should be nice in quality and fitting as neatly as the outside dress. Cheap hats, loaded with feathers and flowers, silk dresses, cheap and flimsy, made heavy with trimmings; car-rings, chains, lockets, rings, with perhaps no gloves—for the street—awaken suspicions that the money is all on the outside. There should be consistency in dress throughout, and whatever one is able to spend for dress should be so divided that the underclothing will be as good as that exposed to view. Formerly ladies made their own undergarments, stitch by stitch; now, the sewing-machine relieves many aching backs and heads. When undergarments can be bought ready made, at little more than the cost of the material at retail, and in any style and at any price, according to quality and trimming, it seems a waste of time to make such articles at home. Fine French embroidered garments are very handsome and cheap; night-gowns and chemises each from two dollars up, and drawers from one dollar upwards. ETHEL STONE.



A Western Boy's Adventure.

BY AGNES CARR.

"Now Jaek, don't forget the meat or the meal, or the liniment," said grandma Speneer, "and try and get some newspapers from the officers at the fort;" and the old lady glaneed gloomily over the flat prairie land, now eovered with an unbroken erust of snow. She had eome from New England two years before, to the eattle raneh, to keep house for her son and graudson, and seareely saw a faee, outside her own family, onee a month.—"All right! Granny! I will try and remember everything," replied Jaek—a bright, eheery lad of fourteen, as straight and supple as a young Indian.

"Won't you take your gun?" she asked.—"No, it would be in the way, with this great hasket. I shall be home long before dark, and there's no danger in the woods by daylight."—"Then hurry, for the days are short, and when the sun sets the wolves and jaekals and sereeeh owls make noise enough to seare the hair off your head," and grandma shook her grey loeks dolefully.—"They are too great eowards to appear in the day time," ealled baek Jaek, "and I shall fairly spin aeross the lake on my new skates." Then with a eheerful nod and wave of his hand, the boy bounded forward over the iey erust. It was seven miles from the Speneer raneh to Waltham, the nearest trading or military Post, three miles of whieh lay through a dense forest, and two aeross Moose Lake, now frozen, where Jaek antieipated a fine glide on his new skates, a New Year's gift from his father. He was aeeustomed to make this trip onee a fortnight, and now trudged briskly through the snow, swinging his basket, and awakening the eehoes with his merry whistle, when a rough voiee hailed him with "Halloo Jaek, you are just in time to lend a hand," and he looked up to see old Ben the "trapper," struggling with some large eontrivanee.

"Why! Ben, is that you! what are you doing?"

"Settin' a bar-trap, but the pesky thing is mighty eontrary."—"I'll help you, and gladly," said Jaek, "but I didn't know there were any bears round here."—"I've seen the traeks of a big one, and if I kin I want to take him alive."—It took them half an hour to set the immense trap, whieh was a rude eontrivanee like a large box, with thiek iron wire sides, balaneed on a pole that would drop at a gentle touch, and baited with a huge lump of deer meat. The sun was high up before Jaek started on.—"Hurry up, my lad," was the old man's parting injunetion, "for we'll have more snow afore many hours."—Moose Lake shone like a burnished mirror in the sunlight, and Jaek buekled on his skates and glided gaily over the polished surface. On reaehing and entering the one Store the little plaee afforded, he found it filled with a motly erowd of raneh-men from the prairie, Indians from the Reservation, soldiers from the fort, women, ehildren and dogs, jostling eaeh other in mad eonfusion, for a wagon train had just arrived and all were eager to wateh the unpacking, and get a first ehoiee from the new supplies. It was very interesting to Jaek, and he lingered longer than he should before making his purehases: storm elouds were flittiug aeross the sky before his basket was paeked, the liniment for grandma's rheumatism tueked away in his poeket, and a new mnffler for himself seleeted and tied round his neek. "I've no time to eall at the fort," thought Jaek, "but I must leave father's message for Captain Carlton, and graudma will be so disappointed if I don't bring the newspapers." So he set off on a sharp run for the fortifieation. He was a great favorite with the eaptain and his wife, and Mrs. Carleton weleomed him warmly, but seeing his anxiety to start homeward, did not press him to stay; she promised to deliver the message to the eaptain, who was absent, and quiekly tied up some newspapers, and added some oranges and white grapes, part of a Christmas box from home.—"I wish you eould stay all night, Jaek," she said, "but I know your father would be worried. Remember me to Mrs. Speneer, and if you see Ogla and Daisy on the road, please send them home. Ogla took Daisy up to the lake to slide on the iee, and neither have any idea of time."—"I will, if I meet them; and thank you very mueh Mrs. Carlton."

Having exeeuted all his eommissions, Jaek turned his faee fairly toward home. The basket, heavier than in the morning, hindered his progress, while the wind began to whistle, and the gray elouds to seud aeross the sky with fearful rapidity. The lake now looked dark and sullen, and as the boy paused in the middle to rest on a sunken stump that protruded through the iee, it seemed very solitary, not a moving thing visible exeept a small objeet whieh appeared to be eoming toward him from the shore. "I wonder if it is a bird," he thought; "If I had brought my gun, I would try my luek at it." But a few minutes later he was glad it was safe at home, as the mysterious figure gradually resolved into a searlet dress, and mass of golden eurls. He started to his feet, exclaiming, "Why! Daisy Carlton, how eame you way out here!"

"Ogla brought me," sobbed the little six-year-old, "but he went off with some of his Indian friends, telling me to wait until he eame baek. He has been gone a long while, and oh! Jaek, I am so glad you have eome." It was too evident that the "Half Breed" who had the eare of the eaptain's daughter, had heeome absorbed with his old eronies, returning to the Reservation, forgetting all about his young eharge.

"Well, don't ery," said Jaek, "eome with me, and we may meet Ogla on the other side of the lake." But the shore reaehed, nobody was to be seen, and now, too, the twilight deepened, and large feathery flakes began to fall.—"There is nothing to do but take you home with me," said Jaek, "and send word to the fort as soon as possible, for they will be alarmed about you." Daisy assented, and trotted eontentedly along by his side.



SAVED IN A BEAR TRAP.

Drawn and Engraved for the American Agriculturist.

As they entered the woods the gloom inereased, and before long, Daisy said she eould not walk any further, "her feet were so heavy." So Jaek took her on his baek, and with this added burden, trudged bravely forward, though his anxiety inereased with the darkness, and he kept his eyes right and left, for he knew only too well that it was very late to he alone and unarmed in the lonely forest.—"Sing, Jaek!" said the ehild, who was now quite happy, riding "piek-a-baek," as she ealled it. He tried to eomply, and started a lively sehool song, but stopped suddenly in the seeond verse, as his quiek eyesight eaught glimpses of two shadowy forms moving through the underbrush, and four balls of fire seemed peering out of the depths of the wood. "Wolves!" he almost gasped.—"Go on!" said the little lady, "why do you stop Jaek?"—"Hush Daisy, I ean't sing, for I must run;" and throwing away his skates to lighten his burden a trifle, he started at a quieker

pace. But he could not keep it up, and as the shadows deepened, the wolves appeared bolder, their sharp bark resounding through the forest, and Daisy cried, "O! Jack, two great ugly dogs are following us."—"What shall I do," thought poor Jack, "I could easily climb a tree, but I can't leave little Daisy. Why! she is the very apple of the captain's eye. No, I'll fight the wolves as long as I can." Drawing from his basket the beefsteak got for breakfast, Jack threw it far behind, which satisfied the wolves temporarily, and sped on with his burden. But the pat, pat, of the horrible footsteps soon sounded behind them again, as the animals, with their appetites only whetted by the morsel, came on all the more furious. The Sunday dinner followed the breakfast, but the basket with all its contents proved only a "sop to Cerberus," while Daisy, now too frightened to speak or cry, clasped the boy tighter and tighter around the neck.

"I can't hold out much longer," thought Jack, and he was just seizing a large branch, determined to sell his life as dearly as possible, when right before him appeared a huge black object, Ben's bear trap, and just as one wolf made a spring at wee Daisy, he turned suddenly, beat the animal back with the branch, and with a rush darted right into the dark box. It fell with a crash, and the infuriated wolves snapped and snarled with rage and disappointment outside. Panting, and almost fainting, Jack sank on the cold ground, while Daisy, still shuddering at the ugly, hungry faces pressed against the wire sides of their cage, asked piteously, "oh! Jack, can't they reach us?"—"No Daisy, we are safe from the wolves," said Jack, though he added under his breath, "but unless help comes soon we shall freeze to death:" for it had turned bitter cold. If Jack lives to be an old man, he will never forget that night. How the wind whistled through the trees, and the snow fell heavily, banking up the trap. He wrapped Daisy in his jacket, sang her to sleep, and trying to keep himself warm with a blanket of newspapers, he moved about in the narrow space, until the drowsy numbness that precedes freezing forced him to lie down, half conscious he might never awake again.

It was nearly midnight, and Ben the trapper sat by his cabin fire, enjoying a pipe before retiring, and his old yellow dog "Rags," curled up in a fox skin by his side. "Well! Rags, old boy, I think it is time we were turnin' in for the night," he had just remarked, when a low tap made the dog prick up his ears. "Who can that be!" cried the trapper, crossing to open the door, and starting back as he confronted a dark Indian face, that looked ashy in the fire light.—"Ogla!" he exclaimed, "what is it, anything wrong at the fort?"—"Miss Daisy! the captain's little pale-face Daisy! I can't find her!" gasped the man.—"What! Daisy Carlton lost, this winter night?" asked Ben.—"Yes, I tell her wait by lake. I go smoke, drink with Reservation Indians, I come back, no Miss Daisy! Oh! Ogla 'fraid to go home and meet captain's eye."—"No wonder," growled Ben, "and there's no time to be lost! These Injuns are never to be trusted!" Hastily drawing on a great coat, taking his rifle, and lighting a lantern, he was ready to set forth, accompanied by Rags, who ran ahead, leaping gaily through the drifts. Almost in silence the two men waded through the deep snow towards Moose Lake, occasionally shouting, in hopes of a response. "I fear she is buried under a drift," said Ben at last: but just then a loud, joyful barking from Rags attracted their attention. "I declare, if that 'ere dog ain't a diggin' at the bar-trap, and I believe there's a bar in it," and he hurried in that direction. Sure enough the box had fallen, and Rags was scratching round it with might and main. "I must have a peep, if I'm shot for it!" said the old man in great excitement, lifting his lantern and peering through the wires; but at the first look he almost fell back in the snow, as he cried, "If there ain't them blessed babes in the woods, safe and sound in old Ben's bar-trap!"—A loud whoop of joy from Ogla rent the air, and then both lifted the heavy box, and gently raised the two children from their cold resting place. Daisy awoke bright and well, and so surprised to find herself out in the woods in Ogla's arms; but old Ben shook his head sorrowfully, as he laid the still unconscious Jack by his cabin fire, and tried to rub a little warmth into his stiffened limbs but it was long before the boy opened his eyes, and came slowly back to life. "Another half hour and he would 'a been froze deader than a door-nail," said Ben.

Meanwhile Waltham was in a high state of excitement. The news that the captain's daughter was lost soon spread, and soldiers were sent scouring the country for miles around. Toward morning they were met by Mr. Spencer and his men, who informed them that Jack was also missing. The wolf tracks and the torn basket made them fear the worst, as they returned finally to the fort, and it was a sad company that the sun rose upon after the storm. The joy, then, can be better imagined than described when Ogla came straggling into camp, bearing his little golden-haired mistress in his arms, and it was a triumphant procession that marched out to Ben's log cabin, and held a perfect ovation over the young hero,



A MANGROVE GROVE.—*Engraved for the American Agriculturist.*

who received them in state, reclining on the great bear skin, the trapper's greatest pride and delight, with grandma by his side, sobbing and laughing over her precious boy, and who would hardly resign her place for a moment to Captain Carlton and his wife when they came with overflowing gratitude to express in broken words their thanks to the noble lad, whom they felt they could never repay.

The big bear still wanders at large, but Ben seems quite satisfied, and is never weary of telling of Jack's thrilling adventure with the wolves, and how "two pretty cubs were caught in a bar-trap."

The Mangrove Tree.

The Mangrove is a small tree found on our far southern shores, which throws out roots from the main stem, and forms a dense hedge along the shore. The trees are found most flourishing between the high and low water mark, and their trunks are covered with water part of the time.

Once when at Guaymas, on the Gulf of California, we went with an excursion to a small island near the port, and a part of our entertainment was the oysters growing in great abundance attached to the Mangrove trees which lined the shore. Roots like those of the Banyan and Mangrove are called "aerial" or air roots. Those that reach the ground help nourish the tree. In some plants they aid the stem in clinging to the bark of trees, walls, etc. The European Ivy, the Trumpet Creeper, and the Poison Ivy, all have an abundance of such roots along their stems. The stalks of Indian Corn send out roots from several of their lower joints, as you will find by examining them. These reach out into the soil and help the stalk to resist heavy winds. They are called "brace" or "stay" roots. Except in size, they are much like the roots of the celebrated Mangrove, shown in the engraving below.

Games for Winter Evenings.

"Oranges or Lemons," or "London Bells," is a game that will often cause considerable sport for a party of young people. Two of the tallest players are chosen, who join hands and hold them up to form an arch. The rest of the company take hold of each other's dresses or coats, and march one after the other beneath the arch, singing in chorus: "Oranges and lemons, say the bells of St. Clement's.—You owe me five farthings; say the bells of St. Martin's.—When will you pay me? say the bells of Old Bailey.—When I grow rich; say the bells of Shoreditch.—When will that be? say the bells of Stepney.—I do not know, says the great bell of Bow.—Here comes a candle to light you to bed.—And here comes a chopper, to chop off the last, last, last man's head."

The last one in the line being cut off by the descent of the arms forming the arch, is asked whether oranges or lemons are preferred, and according to the answer is sent to the right or left corner of the room. This is repeated until all heads are off, when the oranges and lemons have a tug of war. The contestants clasp each other around the waist, the foremost players of each party grasp hands, and all pull with might and main. That party wins which brings the other over to its side of the room. The war tug may well be confined to the boys of the party, the girls looking on and cheering their respective sides. This play is also best adapted to uncarpeted floors.

MY LADY'S TOILET

Somewhat resembles the old game of "Stage Coach." Each player takes the name of some article of the toilet—as a comb, brush, ear-ring, handkerchief, hair-pin, etc.—and a chosen lady's maid stands in the center, and calls for whatever her lady is supposed to require. The person representing the desired article must jump up immediately and go through the motions of using it, as brushing hair, or tying a bow; or else pay a forfeit for negligence. Occasionally the maid declares, "My lady wants her whole toilet," when all the

company must rise, and change seats. In the confusion, the maid rushes for a chair, and the player left without a place then becomes lady's maid.

PIGEONS FLY,

Is a quieter game, but quite as amusing. The company sit round a table, each placing his two forefingers upon it. The leader says "Pigeons fly!" and quickly waives his hands in the air to imitate flying. All the players do the same, excepting when he calls out a name of some animal that can not fly. Thus, the leader cries rapidly, "Robins fly! Bees fly! Chickens fly! Cats fly!" In the excitement of the game many lift their hands from the table, without considering that cats do not fly, and these players are then obliged to pay forfeits.

Do Deer Shed their Horns Annually?

inquires "D. B.," of Aroostook Co., Me. All our deer, including the elk and moose, do so. After the horns have dropped, a skin for new horns is formed, and the animal is then said to be "in the velvet." This velvety covering in time disappears, leaving the antlers hard and horny. The weight of horn shed by our elk and moose is large, but

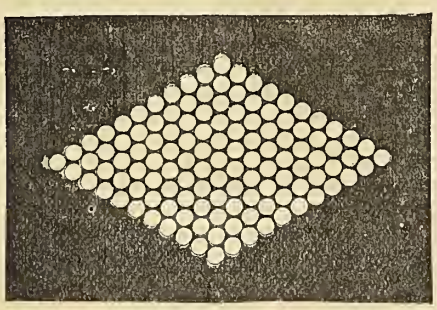


THE ANTLERS OF THE IRISH ELK.

small when compared with the antlers of the extinct Irish elk, the remains of which are found in great abundance in the bogs of Ireland, and its horns are to be seen in our museums. They rose to a hight of at least fourteen feet, and had a spread of twelve feet. The skull with the horns as found, shown above, weighs over ninety pounds, and it is estimated that, when alive, the animal had to support at least a hundred pounds in his enormous antlers.

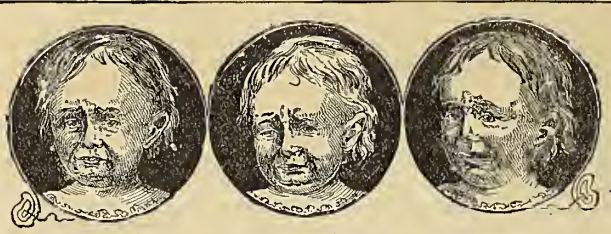
How Our Eyes Sometimes Deceive Us.

There are some minute fossil objects called "Diatoms," which, when seen under the microscope, show beautiful markings upon their surfaces. An eminent French naturalist, while examining one of these which had been described as



CIRCLES WHICH DO NOT SEEM ROUND.

six-sided, found to his surprise that under a very powerful glass the figures were true circles instead of hexagons. This led him to try small circles of black on a white ground, and circles of white on a black ground. The engraving shows the white circles, and if you look at it from a little distance, it is difficult to believe that the white spaces are not six-sided instead of circular. The effect is more striking if one eye only is used. This is one of many cases in which the eye is sometimes deceived by strong contrasts of white and black.



GOING! GOING! GONE!

Hunger, the Best Cook.

ADOPTED FROM THE FRENCH OF JEAN GRANGE.

Mr. Rosiers, a French millionaire, was fond of eating; he knew what good food was, and provided it without stint; but, alas! the appetite was wanting. In vain he sat down at stated hours to the choicest dishes and costliest wines. Everything he tried was tasteless, and he rose to curse his own palate, his butcher, and his cook. The cook he thought most to blame, and no better than a thief, for was he not drawing high wages, and spoiling everything he touched? Old Matthew, the game-keeper, after long listening to his master's moans and lamentations, took courage to say that he knew a man famous for miles around for his "fine cooking." — "Where is he?" eagerly asked Mr. Rosiers. —"He keeps an inn at Vanzelles, a village fifteen miles away, but it is a rough sort of place, and his patrons are chiefly wagoners or sportsmen—you would hardly like to go there, Sir."—"I would go anywhere to find a dinner I could relish," the rich man quickly replied, "and I shall not fail to visit your friend to-morrow."—"But, sir," said Matthew hesitatingly, "old Lelong, the host of the 'Faithful Pigeon,' as he calls his inn, is not accustomed to having a coach and pair stop at his humble door, and I fear if he sees your equipage, he will lose his wits, and be in danger of spoiling his dishes. But if you go there on foot with your gun as an ordinary sportsman, seat yourself at the general table, and eat out of tin and common earthenware, you will have a most delicious meal." — "Very well, Matthew, I can easily put up with the earthenware."

The next morning, after nibbing a biscuit and sipping a little wine, Mr. Rosiers took his gun, and set out for Vanzelles. He was past fifty, short and stout, and was quite unaccustomed to walk fifteen miles for his dinner. The day was warm, and when he reached the "Faithful Pigeon," he was out of breath and ravenously hungry. Dinner was just being served, and the millionaire quietly took the first empty seat among the wagoners....Never before had he tasted such tempting dishes, deliciously cooked, and served in delf and earthenware! Certainly, Lelong was the best cook in the world! After a deal of persuasion, the host of the village-inn was induced to leave his establishment, and accept enormous wages as head cook in Mr. Rosier's city mansion. But, alas! his roasts and fricassees were not the same as when prepared in his own little kitchen; he seemed to have lost his art, for the rich man again lost his appetite. In vain he scolded, in vain the new cook tried his best to tempt the master's palate, and appease his anger. "I shall die of starvation!" cried Mr. Rosiers, rising from a sumptuous, but untouched meal. "Matthew, can you explain the meaning of this?"

"Do not be angry with me, sir," replied the game-keeper, "but remember, that it was only when you had walked fifteen miles for your dinner that you were able to enjoy it. If your food seems tasteless now, Master, it is not Lelong's fault.

About Scorpions.

—o—

A young reader asks what kind of creatures scorpions are, and if their sting is deadly. Scorpions are closely related to spiders. Their bodies have six broad joints, and six others very narrow which form a sort of tail. Two of their mouth parts are formed into pincers, like the large claws of the lobster. At the end of the tail is a sting, having two very small openings below the point, that connect with a little bag from which a poisonous liquid is thrown into the wound made by its sting. The scorpions vary in size from an inch in length, to the enormous kind found in Ceylon, six inches long. They are found in all warm countries; a small one is a native of some of our Southern States, and in Western Texas they are quite abundant. They are usually of a greenish-yellow color, and in Africa there is a black one. The violence of their poison varies greatly in the different kinds, but ordinarily it is not more serious than the sting of a wasp. I have known many persons stung by them. In travelling in Western Texas, and in what is now Arizona, our teamsters did not take the trouble to put up their tents, but spread blankets on the ground, and their only preparation for bed was to take off their boots. I have frequently seen a boot fly across the camp, accompanied by a loud exclamation. The teamster in putting on his boots in the morning, was made painfully aware that a scorpion had taken shelter in one of them during the night, by a sting in the intruding foot. This happened a number of times, and I never knew a man to be laid up from the effects. Intelligent Mexicans informed me that there is a scorpion in the southern portion of their country, whose sting is always fatal to children. THE DOCTOR.

Head, Body, and Legs.

A party of young people may amuse themselves a long time thus: Cut some pieces of paper of any size desired, but three times as long as broad. Each one with a pencil draws upon the upper part of a piece of the paper the head of a quadruped, or bird, or a human one, and folding the top down to just cover the drawing, passes it to another, asking for a "body." When this is drawn and covered



by another folding down, the papers pass on to others to add the legs. After all are finished one is chosen to unfold and exhibit the drawings, and a variety of odd and ridiculous figures will appear, affording great amusement and fun. The four small cuts in the upper portion of the engraving show the manner of folding the paper as the different parts are drawn, and below are given specimens of incongruous figures that may thus be produced. When drawing the head, continue the neck a little below the fold, in order that the one who draws the body may know where to attach it. Do the same with the lower edge of the body.



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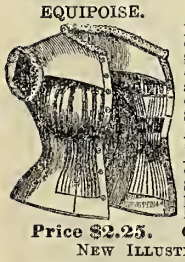
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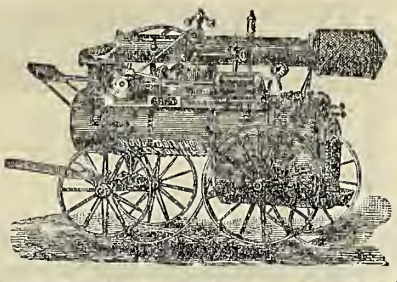
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(Continued from last month.)

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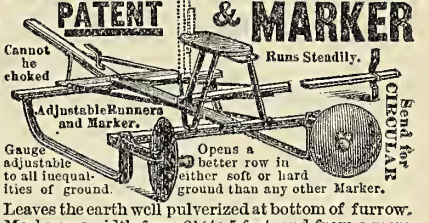
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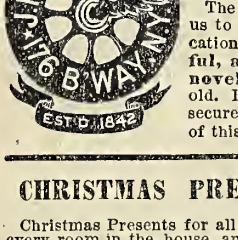


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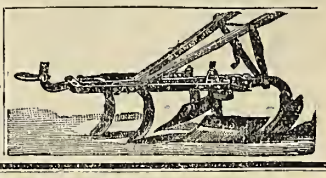
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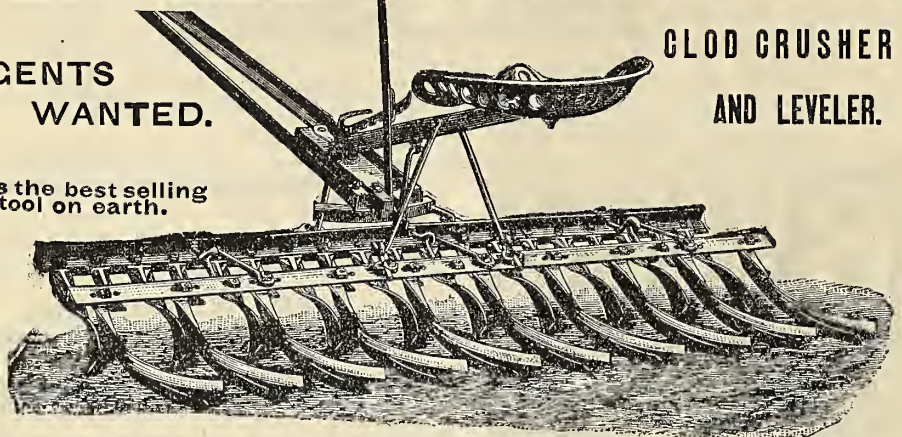
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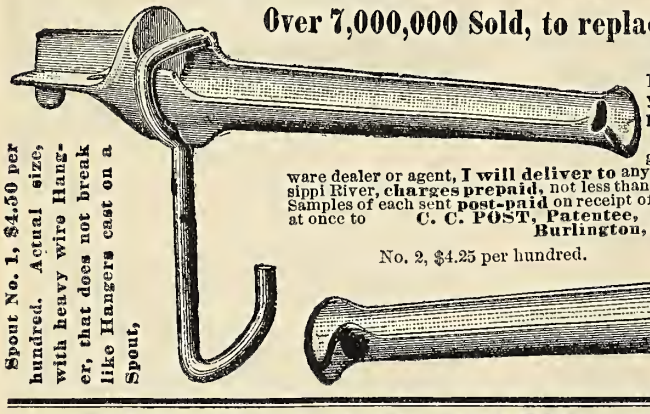
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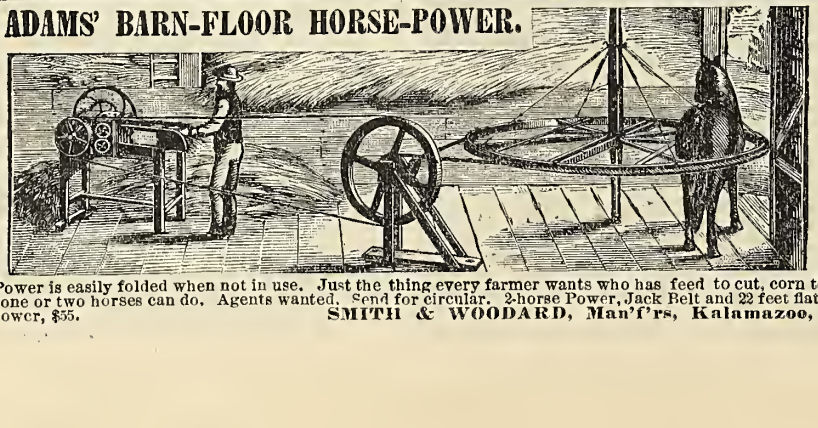
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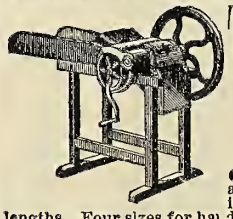
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OUR BASKET.

Small Cows.—Mr. H. E. Prindle, Cleveland, Ohio, and others.—We do not know where the "Diminutive Cows" can be obtained.

The New York Fanciers' Club.—This association of poultry breeders will hold its second annual exhibition in New York City during the last week of January and the first week of February.

Old Ensilage.—Dr. J. M. Bailey informs us that he is feeding all his live stock at "Winning Farm," Mass., on ensilage made in 1882, and has enough of this crop to last another year. Dr. Bailey has no trouble in keeping ensilage for any length of time.

To Get Rid of a Big Stone.—E. McCormick, Jr., Munroe Co., Mich, asks how to get rid of a stone that cannot be readily drawn out by his horses and is in the way of the plow. One method is to dig a hole by its side, and drop it down deep enough to be below the reach of the plow. If stones are needed for use this might be broken up by a blast.

Coal Ashes and Muck for Evergreens.—H. Upsall, Iroquois Co., Ill., asks if coal ashes would answer to mix with swamp muck to make a fertilizer to apply to evergreens. We should prefer to use the muck alone. Coal ashes contain such a slight amount of plant food that they are hardly worth handling, save for their ameliorating effect on heavy-soils. The best use for coal-ashes is to make paths or roads with them.

Hungarian Grass and Millet.—J. M. Marshall, Somerset Co., Pa.—Hungarian grass and Italian, German, and Golden millets are much alike, and if grown for hay or green fodder, there is little difference in their value. The millets have much larger beads of larger grain. Neither would be a suitable crop with which to sow clover and timothy, as aside from growing too closely, the Hungarian-grass, etc., should not be sown until the soil is well warmed, while clover and timothy need the cool weather of early spring.

Value of Land Plaster.—Mr. G. W. Quigley, Rock Hill, Mo.—Plaster may be applied to clover at any time during the early growth of the crop. Clover, and other liguminous plants, like beans, peas, etc., respond much more quickly to plaster, than does timothy and other true grasses. Land Plaster (gypsum), is composed of lime and sulphuric acid, chemically united, and furnishes food both directly and indirectly to plants. It will not make a barren land fertile. There are the so-called "Potato Manures," but potatoes are not so different from other field or garden plants as to need a special manure. The amount and quality of any manure should be determined more by the conditions of the soil, than that of the crop to be grown.

Sorghum a Success.—The thirtieth Bulletin of the New Jersey Agricultural Experiment Station gives the results of experiments with sorghum for the season of 1883. The plots selected were of uniform quality, and had been in grass for three years. The ground was prepared as for corn, and the fertilizers were spread broadcast and harrowed in. Phosphoric acid was supplied in bone black and superphosphate, nitrogen in nitrate of soda, and potash as muriate and sulphate. A study of the table shows that with one exception (land plaster) potash was applied in all cases, when the yield of sugar was over four thousand pounds per acre. Potash developed more sugar than any other single fertilizer, and when combined with nitrogen, gave the highest yield. Potash sulphate surpassed the muriate. The superior value of the sulphate for sugar beets and potatoes is an old fact. At the Rio Grande (N. J.) plantation the plots having phosphoric acid, matured their cane earliest, which corresponds with the results in sugar beet culture. It was found that the quantity of cane is no index of the yield of sugar. One plot gave three tons of cane per acre more than another, but yielded between three and four hundred pounds less sugar. The yield of pure, dry sorghum seed was found to vary from twenty-five to thirty-nine bushels per acre. This is regarded as about equal in feeding value to corn.

The German American Agriculturist.

The German *American Agriculturist* is the only purely Agricultural paper published in the United States. It is prepared for German readers and, with the immense resources of the English establishment to draw from, we are enabled to prepare a paper which every German reader should have, at the price of $1.50 per year. We have printed a very large special edition for specimen copies. If our American readers will send the names of any of their German friends on a Postal Card, we shall be glad to forward such friends a copy of the German edition. If any of our readers have German gardeners or laborers, they cannot do a better thing than to present them with the *Amerikanischer Agriculturist* for 1884 as a Holiday present. The paper will please them, and give them ideas and suggestions which will prove of money value to their employers.

"Make A Note On't."

Capt. Cuttle's frequent injunction, "when found, make a note on't," should be heeded by all cultivators of the soil. Each farm and garden has its local peculiarities of soil, situation and season, and a record or times of sowing and planting, as well as of ripening and harvesting, will often be of great value as a guide for future operations. This farmer's or gardener's "log-book," or diary, may well be kept by the oldest boy, who would thus become interested in the daily work, and acquire the habit of doing something at a particular time. Books with a heading for each day, or diaries, can be bought at a small outlay, or a common blank book will answer. It may interest the boys to know that one of the long-time editors of this journal, always attributes his coming to such a position, to his early practice when a boy on the farm, of keeping a record of eighty cows, the names of the animals, all about them, a plan of the fields, and notes on whatever was done in them, etc., etc. This custom insensibly taught him to put his thoughts on paper, much better than writing "composition" in school. And his record books were only foolscap paper, folded and stitched. The operations of each day should be noted; and to make the record more useful, the progress of the crops may well be recorded. For example, if potatoes are planted on such a day, add to the entry of this, the time when they break ground, how or when hoed or cultivated, manure, seed, when dug, etc. Such a book will be all the more valuable if the weather is recorded, and the readings of the thermometer at sunrise, noon, and sunset. In noting the sowing of seed etc., state the variety as well as the quantity sown to the acre. Such a record carefully kept, will be frequently referred to as a guide in the future. It may be made of still greater value, if the coming and going of help are put down, as well as the various purchases and sales of animals, implements, and their prices.

Forcing Rhubarb, Asparagus, Etc.

The forcing of the production of vegetables far in advance of the usual season, by aid of artificial heat, occupies a large share of the time of the English gardener. It was formerly much more prevalent in this country than since the rapid carriage by railway and steam brings large supplies raised at the South to the Northern markets, and furnishes many vegetables much cheaper than they can be produced here by forcing. Lettuce, which does not bear long transportation, is about the only vegetable that is now forced on a large scale. Boston is the headquarters for this industry, and there are many acres of glass devoted to it in the neighborhood of that city, the growers supplying the markets in nearly all the large Eastern cities.

Asparagus was never forced to a large extent for market with us, as the plants must be four or five years old before they are large enough for this. The beds in the Southern States are now productive, and the supply is annually increasing. It comes in small quantities in January and is abundant in February. Rhubarb is occasionally forced as an incidental crop by florists, who thus utilize the space under the benches of their green-houses. Roots from an old bed, or plants raised for the purpose, are stacked closely under the benches, and fine soil sifted over to fill up all the spaces between the roots. With the temperature at from sixty to seventy-five degrees, stalks are soon produced, and the florist often thus derives a handsome return from a small outlay. A supply for family use can be readily forced by placing a few roots in a barrel or cask with earth to fill the spaces. The plants do not need light; indeed the stalks are all the more tender when produced in the dark, hence the barrel should be covered, taking care to supply water as needed. It may be set near the cellar furnace, or in a warm place in a spacious kitchen. If more convenient, it may be set under a shed with fermenting manure piled around it. Of course preparation for forcing in this manner should be made before the ground closes. Still, advantage may be taken of the usual "January thaw" to lift a few roots for the purpose, and still give a supply of stalks much earlier than they can be had from the open ground. The roots after forcing are worth but little, and it is better to keep up a supply by making new plantings than to set out those which have been exhausted by the operation.

Suggestions for Festive Decorations.

In putting up evergreen decorations, short inscriptions or mottoes and fanciful designs add wonderfully to the general effect for both homes and churches. Cedar and hemlock, although very rich and beautiful, are, as a rule, too heavy by themselves, and give a sombre appearance, unless lightened by bright autumn leaves, light graceful ferns, or lettering in gay colors. But many cannot handle the brush skilfully enough to illuminate nicely, and as such inscription, and devices are only viewed from a distance, it is well to know how to produce a good effect by very simple and inexpensive means.

A square of colored flannel, red, blue, black, or green, forms a very pretty background, on which may be placed stars, crosses, shields, monograms, or any other appropriate device. These cut out of white paper and bordered with evergreens or ferns, with a few holly sprays dotted with scarlet berries in the center, make a charming ornament for bare walls. White sheet-wadding, with its glazed surface, makes excellent letters, that look at a short distance like solid marble when neatly cut out and arranged on a dark background—black velvet throws them out particularly well. Pretty designs may be made by cutting the desired form out of heavy white card-board, giving it a thick coat of warm paste, and then throwing rice upon it.

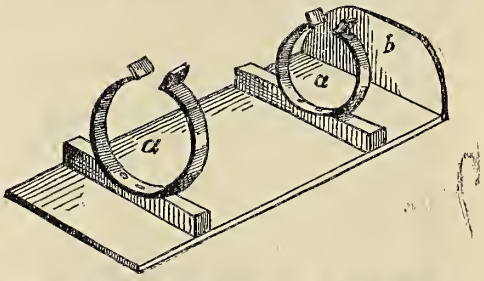
The little yellowish white immortelles, or everlastings, that grow so plentifully in mountainous regions, can always be nicely worked in, and those who have had the forethought to gather a supply of these tiny flowers, will find nothing prettier of which to form these mottoes. They have the advantage that they will last from year to year. Cover the surface of the pasteboard with hot glue and stick the flowers on singly in rows, forming the desired sentence, previously outlined with pencil. If the finished letters warp at all, place them under a heavy book to dry. Florists dye these flowers in all the hues of the rainbow; but they are much to be preferred in their natural state.

If a particularly brilliant effect is desired, gold paper, and frosting—a substance obtainable at paint stores—are used, but perhaps the most beautiful letters of all, are rustic ones, made of lichens, moss, fungi, or pressed climbing fern. It is very effective to cover a monogram, or star sawed out of wood, with these, and bore holes in which to insert branches of holly well decked with berries. Hang it over the folding-door of a parlor, and train long sprays of climbing fern from it, on fine wires in all directions, so as to form a triumphal arch.

New Farm Implements and Appliances.

Bunching Asparagus.—A Simple Device.

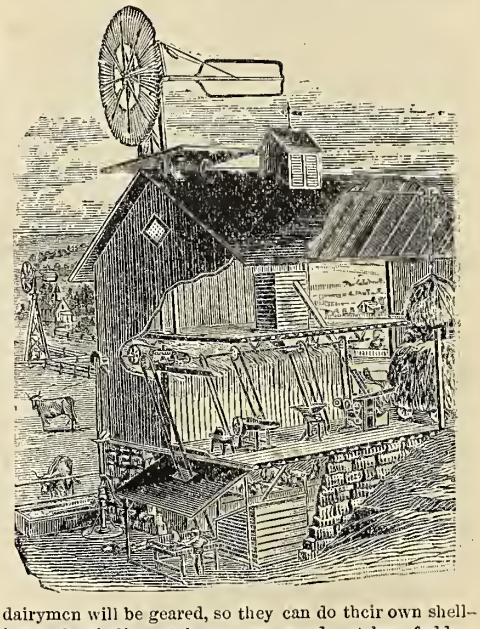
"R. W. B.," Chester, Pa., sends us a sketch and description of a very simple device, which any one can construct in an hour, that will enable him to make up neat bunches of asparagus with great rapidity. Upon a board of any length, nail two small cross-pieces at the desired distance apart, hollowing them out in the middle. Take two pieces of iron barrel hoop, *a*, *a*, of the length required by the size of bunches to be made (about fifteen inches long,) and bend them in the form shown in the sketch, fastening them by a nail or two in the bottom. At the distance required by the length of the stalks, set a thin board, *b*; it can be nailed against the



end of the bottom board, cut off at the right distance. Spring the hoops open a little, and lay in the asparagus with its tops against the upright board, to even them. When full enough bring the tops of the hoop together, and slip over them a staple, flat chain link, or a bit of wood with a flat hole through it. Tie the bunches firmly, cut the butt ends off square; open the hoops, and you have a neat, round bunch, that will show well. As any one who has marketed asparagus knows, a little pains in bunching is well repaid in better prices and quicker sale.

Geared Windmills.

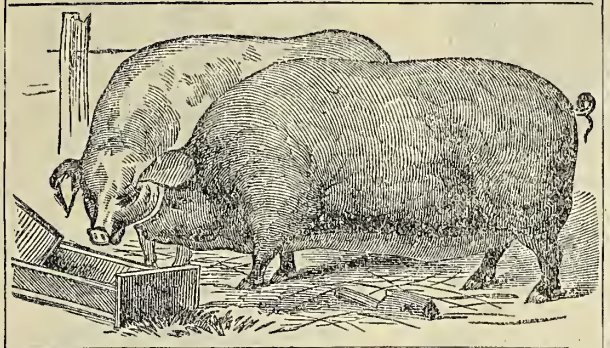
We present herewith an engraving, with latest improvements, of the Geared Windmill manufactured by the United States Wind Engine and Pump Company, at Batavia, Ill. We allude to this matter as one of interest to thousands of our subscribers, particularly in the West and far West. We are assured by those who ought to know that the time is near at hand "when a majority of all windmills purchased by farmers and



dairymen will be geared, so they can do their own shelling and grinding at home, saw wood, cut hay, fodder, ensilage, etc., etc., in addition to pumping water." This accomplished, and the Geared Windmill takes its place as one of the greatest modern labor-saving inventions. A Western correspondent writes: "The thirteen-feet Geared Mill is in great demand, and is ample for a farmer owning one hundred and sixty acres, and the usual head of stock on such a farm." As we have so repeatedly said in the past, settlers in the far West are too apt to run in debt for new machinery. Many bankrupt themselves by so doing. At the same time, those who have the means to do so, should invest in labor-saving contrivances because they are labor-saving; and then when they have them, they should take good care of them.

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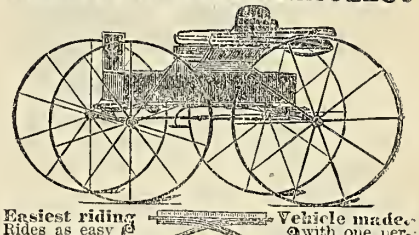
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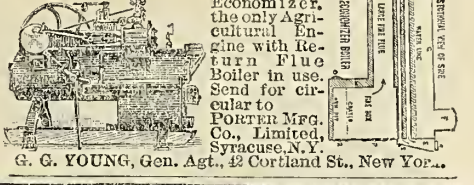
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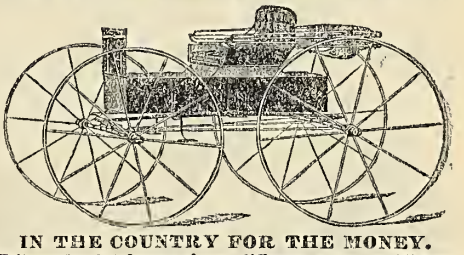


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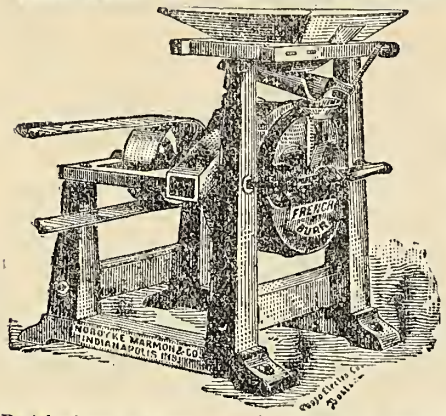
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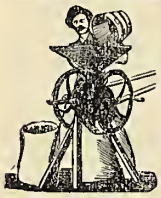
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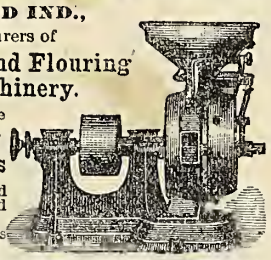
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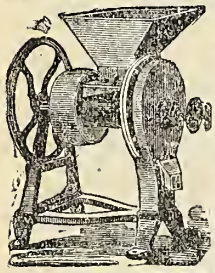
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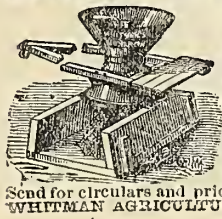
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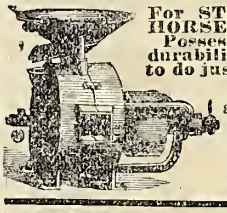


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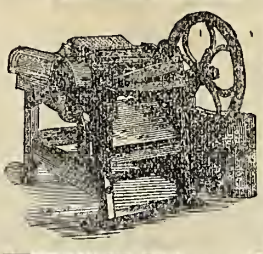
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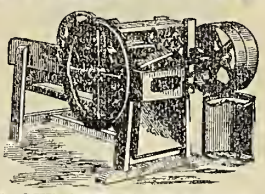
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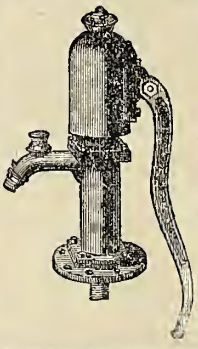
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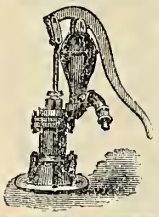
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Especially adapted for Spraying Fruit Trees, Watering Gardens and Lawns, and washing Carriages. Will throw a steady stream 60 feet. Can be applied to any service that a Cistern or Force Pump can be used for. Send for Catalogue and Price List.

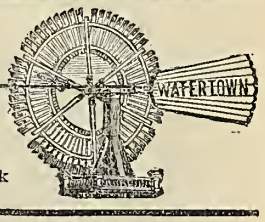
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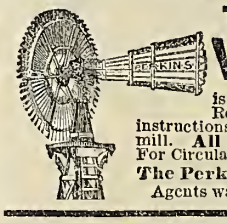
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THE BEST IN USE

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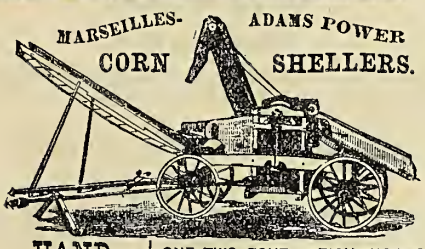
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ONE, TWO, FOUR OR EIGHT HORSE
HORSE POWERS.
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Pumping or Power
WIND MILLS,
ALL SIZES AND STYLES OF
Iron Pumps, Iron Pipe,
BRASS CYLINDERS



CORN SHELLERS

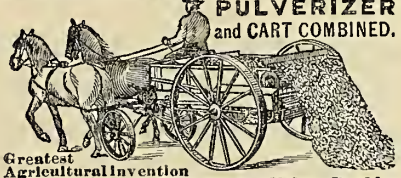


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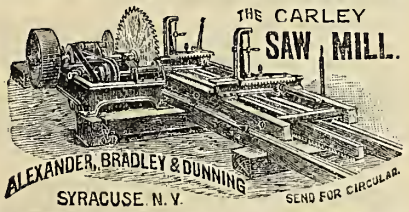
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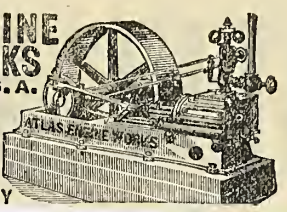
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Send for CIRCULARS.
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Unexcelled for Accuracy & Durability.



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ATLAS ENGINE WORKS
INDIANAPOLIS, IND., U. S. A.
MANUFACTURERS OF
STEAM ENGINES AND BOILERS.
CARRY ENGINES and BOILERS IN STOCK for IMMEDIATE DELIVERY





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of the Atlantic Coast and the Lakes of the United States.

ILLUSTRATED.

With a full account of the sporting along our seashores and inland waters, and remarks on breech-loaders and hammerless guns.

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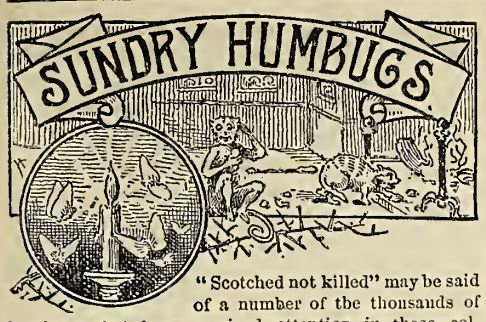
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"Scotched not killed" may be said of a number of the thousands of humbugs that have received attention in these columns. In fact, now and then one turns up that got its quietus herein twenty years ago or more. Human nature changes slowly as a whole. Those who have had their "eye teeth cut" pass away and the new crop comes forward to go through the same process; some never get through with it. The swindlers are not all fertile enough in invention to get up new dodges, though some are quite expert at it; and the old hands often think it will do to try the old tricks upon new dogs. So it comes to pass that we have to often take in hand an old offender or a new one in his cast-off suit.—Further, many new readers are not so familiar as our old friends with some of the phases of swindling, and with some of those which have but recently been found in our Rogues' Gallery. The latter will bear with us, then, if they seem to see the return upon the stage of some familiar faces.

A CASE IN POINT.

Even those who have so long read these columns as to think themselves proof against imposition are not always so.—A farmer living near by called last week at our office to bring in a club of subscribers, which he had gathered, as for many years past, and to talk over some farm matters. He is a fair specimen of a sensible and business-like farmer. We know he is intelligent, for he has read this journal for thirty years, and as he reads, thinks, observes and studies his business, we can always learn something at least from him. Well, after an interview mutually pleasant—it was to us—he left. Later in the day he returned for a little private conversation. To our surprise even he had fallen among the rascals who prey upon strangers, even

"THE BANCO STEERERS."

It was the old, old story. A suave young man, well dressed, came up and called him by name. He professed to be the son of a neighbor of our friend, whom he knew to be a prominent citizen of his county who had several sons, and one or more of them in the city. The Banco man claimed to be one of these sons—"was in a bank here"—"was happy to meet an old neighbor of his boyhood," in short was very agreeable. He soon brought in adroitly his good luck in drawing two large fine pictures, and would his country friend like to see them, and indeed take one home, as he had only room for one.—Down a side street, and up stairs to an office where very solemn men were in attendance, our affable man was informed by the solemn attendants that there was $500 waiting for him from a recent "drawing" for a charitable and religious object, of course. There were some tickets with numbers and stars on them—a regular "I win, you lose" arrangement. Our friend took a ticket and won and then—he lost. Having no ready money to pay the loss he gave his check, and departed a wiser man. He called to privately tell us what he had paid for the lesson, and to express his surprise that after reading all our warnings, he should be thus taken in, and to urge our repeating the warnings until no reader could forget them. Perhaps this narrative will save some others. At our suggestion he telegraphed his bank to refuse the check. In this case the loss was but a few dollars of money in hand, but he feels most the loss of confidence in himself. "He felt that a man like him, old enough to have cut several sets of eye teeth, should be taken in like a green horn was quite too much."—We do not think it shows so much greenness on his part, as the skill and shrewdness of the swindler. "Why," said our friend, "he came right up to me as if he had known me all of his life, and as there are many of his name in our county I tried to recollect him."—We hardly need to repeat our oft-given advice; in travelling, as well as in cities, and elsewhere,

REPEL THE ADVANCES OF STRANGERS.

The Union Detective Agency.

When the circular of this "Agency" came we looked at the bottom for "Cincinnati." But New York claims her share. This "Agency" will make "secret inquiries of every nature" in "every county in the United States." Any one can be a member by "filling out the enclosed blank and forward it with $5.00 at once." Indeed, the circular before us is devoted more to telling how to send that $5.00 than to defining the duties of the members.

Lotteries Here and There.

No long-time reader need to be told that we regard lotteries, even when fairly managed, as prejudicial to the welfare of the community. The fact that many give their money in order that a few, who do nothing to deserve it, may draw prizes, makes it one of the meanest forms of gambling. By law, all letters and circulars relating to lotteries are excluded from the mails. But that "Royal" concern at St. Stephen, N. B., in defiance of the laws of Congress, still sends its schemes far and wide. It would seem that Congress, with a proper regard for its own dignity, should find a way to put a stop to this. Isn't it rather hard on our own swindlers to be shut out from the mails, while the "Royal" chaps, the "Blue-noses," can flood the country with circulars, tickets, and schemes of their lotteries over the border?

"Sprats to Catch Herring."

The cashier of a bank in Logan Co., Ky., informs us that a farmer presented a dollar bill, asking if it was genuine. After close examination the teller pronounced the bill good. The farmer received it in a letter, which offered him any quantity of the same stuff, fully equal to the sample. The cashier says that the bill is no doubt genuine; but that the recipient "did not bite," and is one dollar better off.

One of the oldest of all humbugs is the offering of, or rather pretending to offer, counterfeit, or "Queer" money. It has been thoroughly worked, and has appeared in many guises, yet they still come. One circular, purporting to be sent by Chas. Hayden, 744 Sixth Avenue, New York, is more blasphemous than any we have before seen. Its appeals to the Deity in asserting the truth of its claims are enough to make one shudder.

Superfluous Hair.

A correspondent in Ohio asks our opinion of the circular of a Philadelphia "University Chemical Preparation" for removing hair from the face, arms, etc. It is claimed that the preparation is not poisonous and "is based upon the unerring natural laws of matter, and can never fail." As we have not seen this preparation we can only judge of it on general principles. It has no right to call itself a "University Chemical Preparation," as no "university" has anything to do with it. Being false in its title, we have a right to suspect that its claims are equally false. But why remove the hair? Removal will only stimulate future growth. Some of the most estimable ladies of our acquaintance are thus annoyed, but they have the good sense to know that the regard in which they are held by their friends is not affected by a few hairs upon the face.

The End of "Fund W."

Flemming & Marion, claiming to be brokers in Chicago, not long ago flooded the country with their circulars, showing that an easy road to fortune was to subscribe to their "Fund W.," and allow them to speculate with the money. At one time these circulars were sent us in great numbers by our readers, who asked our advice about subscribing. Suddenly the "Fund W." circulars ceased to come. The Post Office Department refused to allow Flemming & Marion to do business through the mails, and as a consequence the firm came to grief, and the "Fund W." could not be operated. One of the firm went to Canada to avoid arrest, but found he "was wanted" by creditors there. Escaping from the officers of the Dominion, he took refuge in Dakota, but was arrested there; at last accounts he was awaiting trial in Illinois upon a charge of obtaining money under false pretenses. We shall probably hear no more of "Fund W."

"Storm Glasses," So Called.

A Postmaster in N. C., writes us that parties in Indianapolis, Ind., offered to send, for a certain sum, "a Thermometer and Storm Glass combined." The parties offering the affair having sold out, their successors propose to send the instrument for fifty cents additional. The N. C. Postmaster asks if this is not a case for our Humbug Column. This whole "Storm Glass," or "Weather Glass" business, is a humbug. The so-called "instrument" consists of a thermometer, and a tube about six inches long, and as large as one's little finger, containing a liquid. It is claimed that this liquid becomes cloudy when a storm is at hand, and when it clears, fine weather is to be expected. The liquid is diluted alcohol, holding in solution Sal Ammoniac, and other salts. A maker of excellent thermometers in the suburbs of New York, a few years ago proposed to add these "Storm Glasses" to his thermometers. He sent us two of the instruments for trial, and after a few days, called at our residence in the country, to learn the result. When he came, both instruments showed that clear weather was prevailing. We then placed one of the instruments in the refrigerator, and soon had a violent storm predicted, while the other remained as clear as before. This showed that the "Storm Glass" is only affected by temperature. When the liquid it contains is cooled, the salts crystalize, and it becomes cloudy. As a weather indicator, it is quite worthless. Our thermometer maker, being an honest man, did not add the "Storm Glass" to his instruments.

The Blind Leading The Blind.

If Messrs. Chas. Prudit & Co., German, Mo., are not humbugs, they are unfortunate in their manner of advertising. C. P. & Co., have evidently come into possession of a small printing press, and know very little about using it. Their circular has the merit of brevity, and is printed in large type, on a small sheet of note paper. It reads:

"WE Being informed oF your GOOD & Reliable Standing in Business This Induces us to communicate with you by Letter We would be glad to Initiate you in a New pleasant and very Profitable Business it is Something ENTIRELY NEW nothing to sell or peddle No other Firm in THE U S DEvotEd To THE Business Avail yourself of this offer—& we will Pay you a Salary iF you work for us only during yours pare moments From $5 to $50 Per month acCording tO YOUR Service Return us this letter with only a $1 Bill or stamps & we will send you FREE by mail our Complete Working Outfit You can then work For us or yourself Regular Price $5 This offer is good for 30 Days For our Fair Dealing SEE MO Directory Here write AdREss Don't ask for dcription of Outfit We only initiate Purchaser."

This is a curiosity in the way of a circular. We have given it *literatim*—and were about to say *punctatim*, only it don't *punctate* at all. Indeed, there is not a particle of "pepper and salt" in the whole mess. We do not wonder that the Colorado Postmaster was in doubt as to its contents.

How Postmasters are Tempted.

A personal friend, who is, as was his father before him, Postmaster in a small rural district, in New York State, sends us a circular to show the offers made to Postmasters. A concern, which modestly calls itself nothing less than the "World's Dispensary Medical Association," asks our Postmaster friend to furnish (on a blank enclosed for the purpose), "the name of every person whom you know to be suffering from any chronic or lingering disease (however slight it may be), indicating also, if known to you, what the disease is, or has been pronounced by home physicians; *also the names of all other people*, not to include more than two in any one family, and *omitting the names of physicians*. [We should say so, Eds.], and only including those who obtain their mail through your office." The Postmaster who does this, is offered some kind of a book, and he has also a "numbered receipt," good for one of the presents valued at from twenty-five cents to six thousand dollars, "in our next Grand Distribution." Here is an offer to the Postmaster to sell the knowledge he has acquired of his patrons, and also to take a chance in a "Distribution," which is but another name for a lottery, which is forbidden by the law of the State, and shut out from the mails he handles. This "Dispensary" concern also wishes Postmasters to send lists of people afflicted with all sorts of diseases. If other Postmasters will so far violate the proprieties as to comply with the requests made in the circular, sent out by this "Dispensary," the Post Office Department, under its present head at least, will soon dispense with their services. The concern says, "We want the names of all invalids." When you tempt Postmasters into taking part in a lottery, we are tempted to say, "Physician (if you happen to be one), heal thyself."

"The Wonderful Tree Bean of Mexico."

Sometimes one is unfortunate in the style of his advertisement. The "Tree Bean" was advertised by a party in Wisconsin in a manner that made us suspect that it was the same plant which was offered a few years ago from a small town in Tennessee as a "Tree Pea." In our notice of the "Tree Bean," in November last, we asked those who had tried it to send us specimens. The responses have been numerous; they indicate that there are at least two, possibly three, distinct beans claiming to be "tree"-like in their growth. The correspondence relating to these "Tree Beans" is already large, and the specimens sent vary from a few beans in an envelope to the whole plants in a box. We are warranted in saying that the "Tree Bean" offered by the dealer in Wisconsin, is a bean, and a very prolific one. As to its Mexican origin and its real value, as well as that of similar beans, we may have something more to say hereafter.

Market Gardeners,

And all who want good, fresh seeds cheap, direct from the farm, are requested to send for my Seed Catalogue for 1884. There are no better or cheaper seeds. Catalogue, with directions for cultivation, free. Please send for it. Address, JOSEPH HARRIS, Moreton Farm, Rochester, N. Y.

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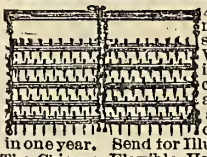
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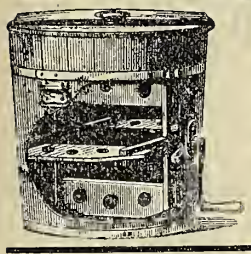


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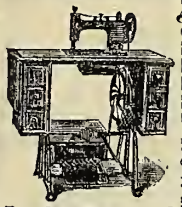
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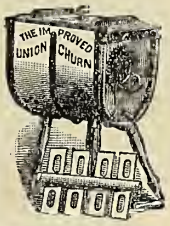
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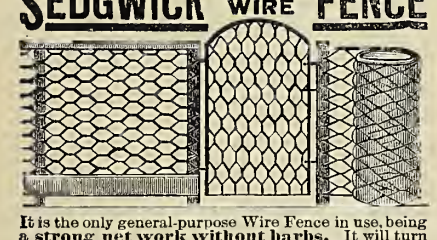
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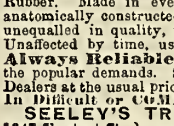


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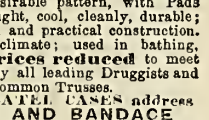


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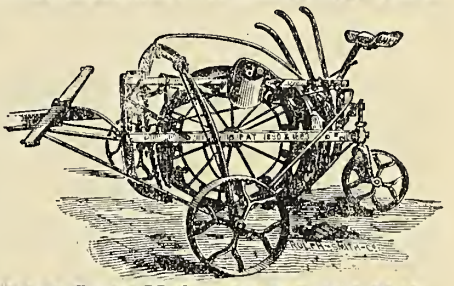
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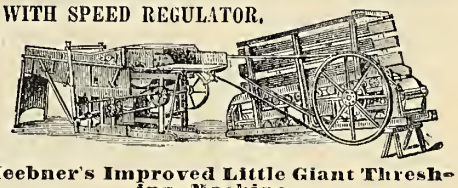
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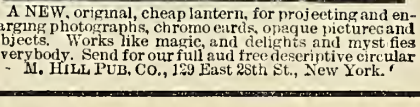
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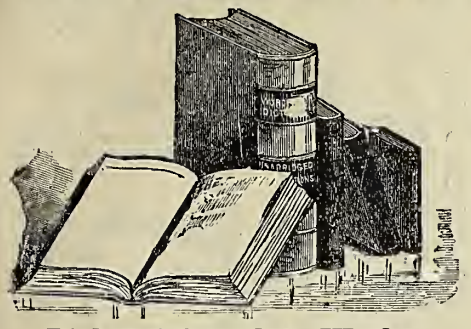
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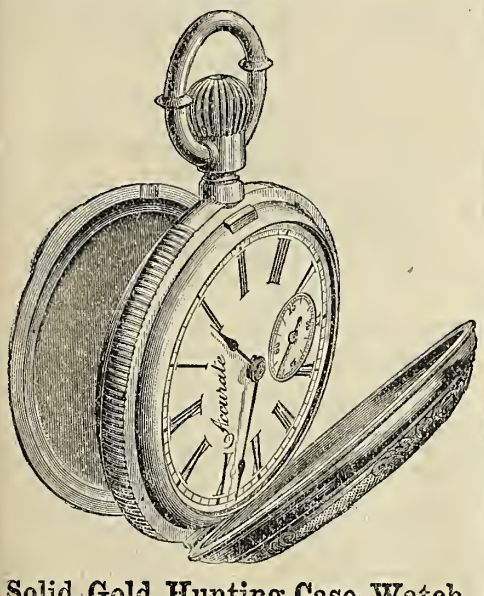
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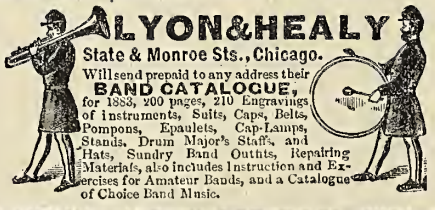
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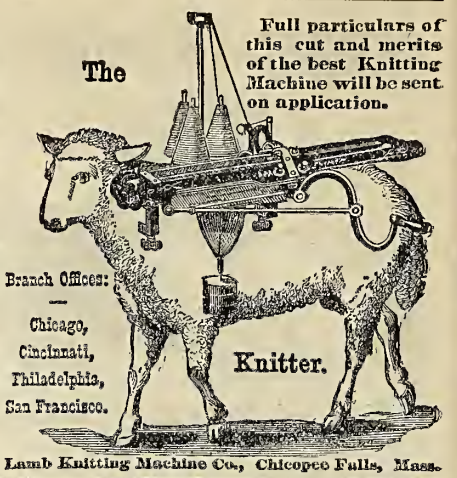
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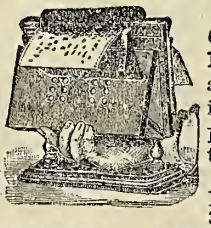
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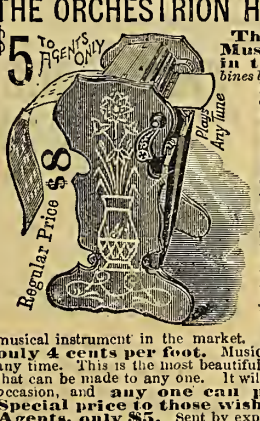
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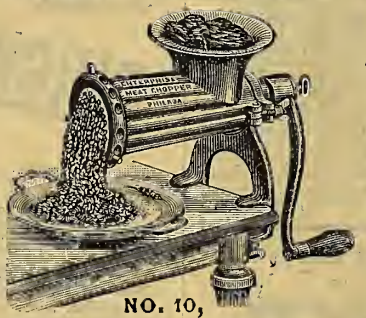
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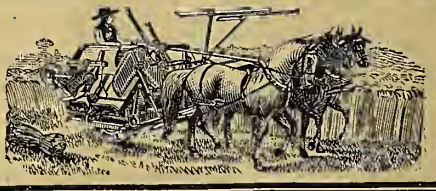
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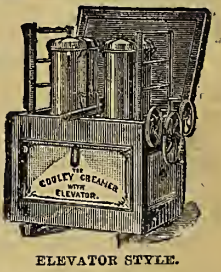
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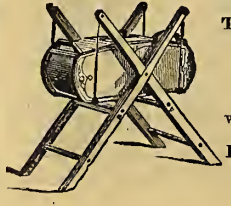


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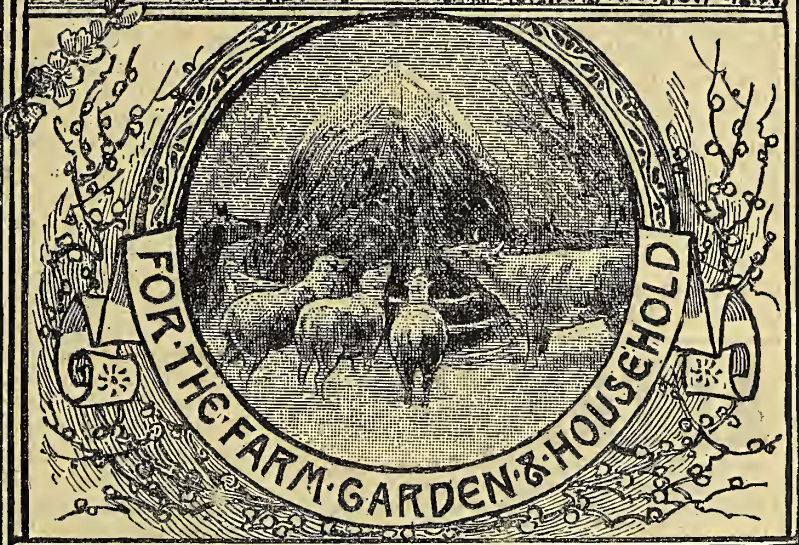
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300 Bushels "Beauty of Hebron," and over on **one** half acre, equal to over 600 bushels per acre. HENRY LATHROP, South Windsor, Conn.

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(Continued from last month.)

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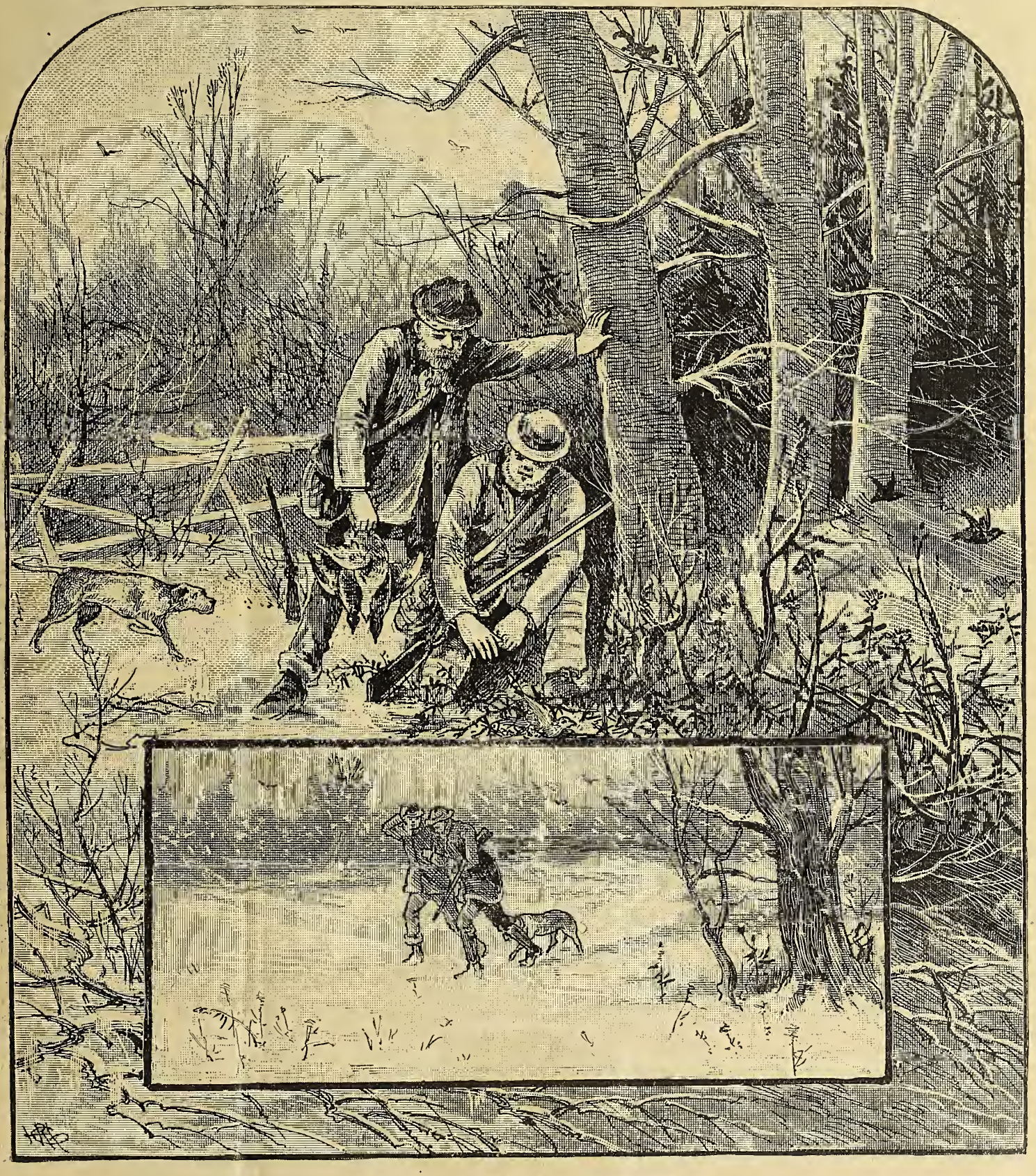
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Contents of this Number.

[Articles marked with a star (*) are illustrated; the figure with the star indicates the *number* of illustrations.]

Apricot, An Almost Forgotten Fruit....*.. 66
Art, Manual in Farming.... 49
Bacteria, What are?....*.. 64
Barn, A Remodelled....4*.. 48
Barn Yard Economy.... 62
Bees in Winter Quarters—Dysentery.... 52
Birch, The White....*.. 56
BOYS' AND GIRLS' COLUMNS:
How to Make a Toboggan....3*.. 70
About St. Valentine's Day.... 70
The Doctor's Talk....3*.. 70
Lady Bird and the Boys....3*.. 71
"Buck, Buck, How Many Horns?"....*.. 72
Brake, A Simple Automatic Wagon....2*.. 49
"Cat" Scare-crow.... 47
Chat with Readers.... 59
Chick Pea, The—"Coffee Plant"....*.. 66
Chicken Brooder, A Home-made.... 63
Comfort from Newspapers.... 57
Comforts, Little for Farmers.... 54
Conservatory, A Window....*.. 65
Corn, A Change in Color of.... 67
Corn, Its Value in the Ration.... 64
Cross-bars for Mangers and Troughs....*.. 63
Dairy Statistics, Californian.... 56
Dairying in California.... 48
Double-Tree, A Light Strong....*. 63
Dutchman's Pipe, The.... 60
Editorial Notes....3*.. 58
Egg Refrigerator.... 60
Farm Work for the Month.... 46
Farming Does Pay.... 63
Feeding and Care of Farm Animals.... 47
Fence of Stakes and Riders....*.. 62
Fence, Portable Poultry....*.. 57
Fern, The Maiden-Hair....*.. 67
Flower Forcing in the Window.... 65
Fowls, Light Brahmas.... 60
Fowls, Selecting for Eggs and for Market.... 62
Garden, Flower and Lawn.... 47
Garden, The Fruit.... 47
Garden, The Kitchen.... 46
Gate, A Wrought Iron....*.. 55
Green-House and Window Plants.... 47
Hedge Plants.... 60
Hinges, Gate of Wood....3*.. 62
House, A Progressive Dakota Farm....5*.. 54
House, Poultry, Costing $43.00....3*.. 64
HOUSEHOLD:
A Corner Bracket....*.. 68
House-Furnishing.... 68
Drop-Leaf Tables....*.. 68
A Home-Made Fernery....*.. 69
A Home-Made Lounge....*.. 68
About Coughs and Colds.... 69
A Sand-Paper Block....2*.. 69
Line Carving....2*.. 69
Hurdle, A Revolving....*.. 57
Hyacinths.... 64
Ice Crop, The.... 49
Insect, The Grape Seed.... 56
Ladder, Quickly and Cheaply Made....*.. 47
Ladders, Dangerous....*.. 52
Lights in the Barn.... 55
Marker, A Convenient Ground....*.. 47
Measure, A Half Bushel.... 53
Mulleins, About.... 60
Nest Box for Sitting Hens....*.. 51
Ohio Experimental Station.... 60
Orchard and Nursery.... 47
Pine Trees and Lightning.... 60
Plants, Forwarding....*.. 65
Possibilities of Western Farming.... 57
Potato, A New.... 65
Rack, A Sheep....*.. 51
Raisin Making in California.... 66
Sashes for Hot Beds....*.. 65
Sausage Press, A Home-Made....*.. 49
Shed, A Cheap Manure....*.. 51
Sheep, American Merino.... 53
Sheep Husbandry, The Old and New in....* . 61
Skunk, Hookertown Views of the.... 60
Sleds, Two in One....*.. 49
Sweet Gum Tree....2*.. 67
Trapping in Winter....*.. 45
Tree Planting, Prairie.... 64
Vegetables, Prepare for Early.... 51
Veterinary, Answers to Questions.... 51
Wagon Box, A Second Story....*..52
Weevils.... 54
Work, Early Spring.... 56

For Humbug exposures, book reviews, business announcements, etc., see the last pages of the paper.

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The Guns which we offer elsewhere as Premiums for subscribers to the *American Agriculturist*, are proving more than satisfactory. Indeed, both of them are better than we had supposed we could furnish for the money. With scarce an exception, every person procuring these from us, express satisfaction. For Testimonials regarding these Guns see another page.

Premium List.

We have issued another edition of fifty thousand of our Premium List, which will be mailed, postpaid, to those of our friends who desire to raise clubs for the *American Agriculturist*.

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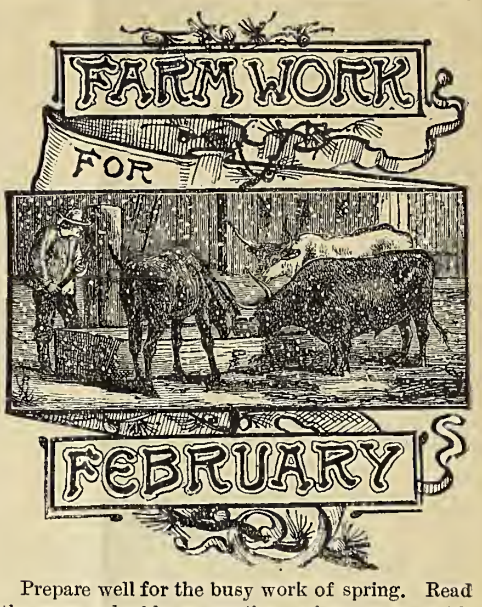
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The homes of nearly all of our readers, however humble, are doubtless cheered and enlivened with some musical instrument or another. Sheet music ordinarily retails all the way from thirty-five cents to a dollar apiece. Some, of cheaper character, published on poor paper is hawked through the country at lower figures. We have made arrangements to supply, without cost, all the readers of the *American Agriculturist* with the latest sheet music printed on the best music paper, full size. A large list of this music is presented on two pages, elsewhere. Any new subscriber to the *American Agriculturist* for 1884, or any one sending us a new subscriber at the regular rate, $1.50 a year, can order from us any twelve pieces of this music, and it will be delivered free here or sent post-free to any point in the United States or British Possessions, on receipt of ten cents for postage. Here is a splendid opportunity, which every one desiring instrumental or vocal music should embrace.



Prepare well for the busy work of spring. Read the very valuable suggestions given on page 56.

Horses.—Don't forget to daily exercise your brood mares. Overfeeding ruins as many horses as overwork. Keep the stable clean and stalls well littered.

Cattle.—Feed sliced roots or potatoes once or twice a week, as an appetizing change in the rations. Milch cows require careful handling, as they approach the time of calving. Raise only the best calves from superior animals.

Sheep.—Those grown for wool thrive on a mixed ration of bright straw, hay and grain. Early lambs are profitable, but need constant care when they first come. Old sheep for the shambles should be pushed forward rapidly with a daily grain ration.

Swine.—Young pigs require warm and comfortable quarters, and a thick, dry, cut-straw bed.

Poultry.—Laying hens thrive with much sunshine and plenty of food, both green and dry, with a full supply of pure water, and some form of lime.

The whole subject of feeding farm animals requires most careful study by all keeping them, and especially during the winter season. The attention of all practical stock raisers is directed to the prizes offered on page 47, for essays on the keeping of the various kinds of live stock of the farm.

Kitchen and Market Garden.

Market gardeners know the importance of doing certain things at a given time—a date which each has found to be best for his particular locality, and knows if he varies from this but a few days, his crops may be so far behind those of his neighbors as to seriously affect his returns. Market gardeners need no reminder to do this or that, as their success depends upon observing the times for sowing, planting, etc. Not so with the farmer and others, whose gardens are to supply the family table. The garden with most farmers is a secondary affair and often neglected to their loss and to the discomfort of the family. Such need to be frequently reminded of the things to be done. There is no reason why every farmer's family should not enjoy the best vegetables, and as early as any one, save those who buy vegetables brought from the South. To have early vegetables the seeds must be sown early. Few farmers care to give the attention needed by a hot-bed, but quite as good plants may be raised in the windows of the house with scarcely any trouble. All the plants needed for the family garden, of early cabbages, lettuce, cauliflowers, tomatoes, etc., may be raised in boxes, as described on page 65. Try it, and another year it will come as a matter of course. It takes about six weeks to raise plants from the seed, large enough to set in the open ground, and this will govern the time of sowing. Cabbages are nearly hardy, while tomatoes, being very tender, cannot with safety be set in the open ground until "corn-planting time," and must be sown later.

Good Vegetables will only come from good seeds. One cannot afford to sow doubtful seeds. Those

of uncertain age or without labels and of doubtful source, should be burned and a fresh stock ordered.

Selecting and Ordering Seeds.—The catalogues are out this month, and dealers will gladly send to those who ask for them, while the mail, as has been well said, gives every one, no matter where he may live, "a seed-store just around the corner." Novelties are offered every year. Order these for experiment, but for the main crop rely ouly on tested and well-established varieties. Order early.

Peas are of two classes, the round and the wrinkled. The latter kiud, if sown in eold, wet soil, will rot; the round peas are hardy and may be sown as soon as the ground thaws. Make a drill three or four inches wide, with the hoe, and scatter the seed peas in it, so that they will be about half an inch apart, and cover with two inches of soil.

Plants in Cold Frames.—Remove the sashes whenever the thermometer is not below thirty-two degrees. If the soil iu the frames is not frozen when the snow falls, clear it from the sashes. Otherwise the snow may remain a week without injury.

Be all Ready for Work.—As soon as the ground thaws there will be no time for odd jobs. Finish up all the work of preparation at once. Repair implements; provide duplicate breakable parts. See to the work harness. Provide stakes and labels. Cut pea-brush; lay it on level ground and weight it with rails or logs, to flatten it. Procure bean poles; a set of red cedar poles will, if cared for, last many years. In a thaw dig the parsnips and salsify left in the ground and take out all the horseradish, whether wanted for use or not, to prevent its becoming established, when it will be difficult to remove, and prove an annoying weed.

Orchard and Nursery.

A New Orchard.—One about to plant trees can hardly give too much thought to the selection of varieties. Procure catalogues and study them. An orchard for home-use should yield fruit for every season. For a near market, early fruit is usually the most profitable. In selecting later varieties have but few sorts, and those of kinds generally in demand. Order all fruit trees early.

Old Orchards in the older States are more numerous than young productive ones. The land is exhausted by bearing two crops these many years, a crop of fruit and one of grain, hay or some other. If the trees are still sound they may be renovated, but not unless the soil is also renovated. Providing food for the trees is the first step. Manure may be hauled out while snow is on the ground. A liberal dressing turned under by a shallow plowing, and keeping off all crops, unless it be clover to be pastured by swine, are essential.

The Trees.—In a damp time cover the trunks and large branches with soft soap, made thin enough to apply with a brush. Prune away all crowded and superfluous branches, to form an open head.

Grafting Old Trees.—If the fruit is poor and the trees sound and healthy make a new head by grafting with desirable sorts. In renewing an old tree it is better to extend the work over three years, grafting the lower third first and the upper third last.

The Fruit Garden.

Pruning.—If any pruning was left unfinished last fall, complete it iu the first mild spell.

Dwarf Pears.—With the exception of Duchesse d'Angouleme, and perhaps Louise Bonne de Jersey, standard pear-trees are preferable to dwarfs as a matter of profit. If one wishes to raise many varieties iu a little space dwarfs will do this.

Supports for Vines, including trellises for grapes, should be made ready. The woodwork may be painted, or treated with several coats of petroleum.

New Plantings.—If it is intended to set out shrubs, etc., the coming spring, the selections, whether for home supply or for market, should be made while the matter can be properly considered.

Grape Vines.—Occupy all the available places with vines, planting them wherever there is a barn or other surface against which they can be trained.

Flower Garden and Lawn.

But little out-door work can be done in the ornamental grounds this month. It is important to guard against injury to shrubs and trees by animals. If pruning is needed, do it on mild days.

Hardy Annuals.—To have early flowers sow seeds iu the window boxes described elsewhere. Candytuft, Ten Weeks' Stocks, Pansy, and other hardy kinds may be sown and the plants thinned or transplanted to other boxes. The Pansy, which fails to give fine flowers in hot weather, if sown iu this manner may be had in bloom early, and at its best.

Manure for the Lawn.—Reserve enough of the most thoroughly decomposed and fine manure for top-dressing the lawn. In the absence of this, apply ashes, nitrate of soda or some other fertilizer.

Plants from Cuttings may be propagated now for planting out in the garden. Verbenas and other plants which form root readily, may be propagated in window-boxes, described elsewhere for sowing.

Green-house and Window Plants.

As the sun becomes more powerful, bloom will be abundant and plants will start into growth, and need more water.... *Ventilation* can now be given more freely, especially to window plants.... *Insects* will increase more rapidly and will demand attention. Those who give their window plants daily care, are able to stop the first attacks of insects, and save much future trouble. Fumigation with tobacco smoke, is best for the greenhouse, but is not easily practicable with house plants. For these showering with tobacco water is best.

Tobacco Tea.—Pour boiling water over tobacco stems, or other cheap form of "the weed," and when cool dilute it to the color of strong tea, sprinkle the plants with it, or what is better, having the liquid in a pail or tub, dip the plants in it.

The Red Spider, because so small and not always "red," and living mostly on the under side of the leaves, is often an unsuspected cause of much injury to window plants. Moisture is the best remedy; go over the leaves, especially the under side, with a soft sponge, using very weak soap suds.

The Mealy Bug, so-called because it is covered with a mealy powder, is often a great pest. It is usually in the forks of the stems, and may be picked off with a small sharp-pointed stick.

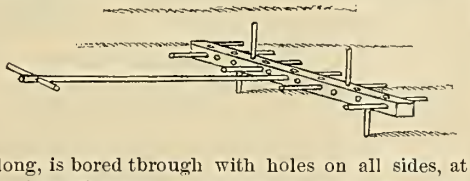
Faded Flowers.—Flowering is very exhausting to a plant, and seed-bearing is still more so; as soon as flowers begin to lose their beauty they should be cut away before the formation of the seeds begins.

Roses.—The stems that have borne flowers should be cut back to a strong bud, which will soon push.

Camellias, when flowering is over, will make their yearly growth rapidly. The plants may be given a warmer place and will require more water.

A Convenient Ground Marker.

Now is the time to get up things needed when the busy spring comes. Mr. L. D. Snook sends us a sketch and description, from which we condense the following: A simple implement for marking out rows at various distances apart, can be made by any one at home. A piece of pine or other timber, two to three inches square, and two to four feet



long, is bored through with holes on all sides, at various distances apart, those on each side being all of the same distance from each other. A large hole in the center in two directions, receives the handle. The other holes and marking pins to fit them, may be of any size desired, and the pins be quickly changed from hole to hole, as required by different plants. With the handle removed, or fastened in, this can be stored away in small space.

Feeding and Care of Farm Animals.

Prizes Offered.

Plain and practical directions for the keeping of all kinds of Farm Animals are always valuable and welcome, and with this in view the Publishers of the *American Agriculturist* offer prizes for Essays upon the *Feeding and Care of Farm Animals.* Horses, cattle, sheep, swine and poultry are the leading kinds of live stock on a farm, where a system of mixed husbandry is successfully practised, and each Essay must treat of at least three of these, as to their feed, its storage, kinds, cost, etc., followed by the proper care of the animals both in the pasture and under cover. In short the essay should include all the important points in the *keeping* of the farm animals treated. The order of treatment should be as given above, and if other kinds of live stock are included, they should follow the poultry. The cash prizes for these essays are:

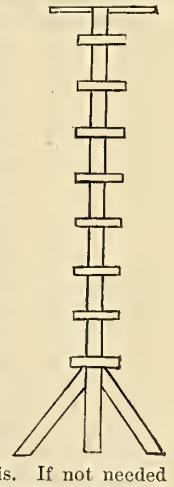
For the Best Essay.....$50.00
For the Second Best Essay..... 40.00
For the Third Best Essay..... 30.00

The essays are to be plainly written in black ink, on one side of plain white paper, and should not exceed eight thousand words. Sketches may be made whenever they will add clearness and force to the text. The essays are to be sent to the Editors of the *American Agriculturist* on or before May 1, 1884, in a sealed parcel (not rolled) and with an assumed name. Place the real name in a small sealed envelop accompanying the essay, and bearing the assumed name upon its outside. All essays submitted for the prizes become the property of the *American Agriculturist.*

We wish the experience of the practical farmer, and therefore this offer is open to any one who has attained success in the keeping of farm animals. The field is a broad one, and it is therefore all the more essential that each part be concisely treated. Diseases, and the care of young stock are not the least important topics to be considered in the essay.

A Ladder Quickly and Cheaply Made.

A good strong but light ladder on every farm is almost indispensable, and two or three of different sizes are generally desirable. Where a better one is not available, one can be improvised in an hour or so that will answer many purposes. For the main support use a scantling of any desired or available length, and three by four inches thick—the size depends upon the kind of timber and its strength, and the length of ladder required. Across this nail at the desired intervals, strips ten or twelve inches long, two to three inches wide, and an inch thick. Three or four strong nails should be driven in each one of the several steps, to give strength and safety. A cross piece on the upper end and two side braces (as shown in the illustration) will prevent such a ladder from turning on its axis. If not needed longer the steps and braces can be quickly knocked off, and the timber turned to account otherwise.



A "Cat" Scare-crow.

Mr. Charles Lauppe, Urbana, Ohio, keeps the birds from his grapes with a scare-crow "cat." This "animal" is made of Canton flannel, of the color of a maltese cat, stuffed with curled hair. Hair is better than wool or cotton, as it soon dries out after a rain. A "cat" of this kind will effectually protect the grapes from birds for twenty feet on all sides. Mr. Lauppe sets his "cats" upon the grape trellises, where they may be secure and in full sight of birds wishing to plunder.

A Remodelled Barn.

2D PRIZE.—BY JOHN MORRISON, JR., OBAN, ONTARIO.

The average farm barn found in very many sections of the country is fairly represented in the elevation, figure 1, and the floor plan. Around this structure there generally gathers, as time goes on, necessity dictates, and circumstances allow, a series of other out-buildings without any pre-arranged plan. The owner is forced to admit that many inconveniences are caused through lack of forethought and definite plan; he has wasted more time, which means money, than would have erected all

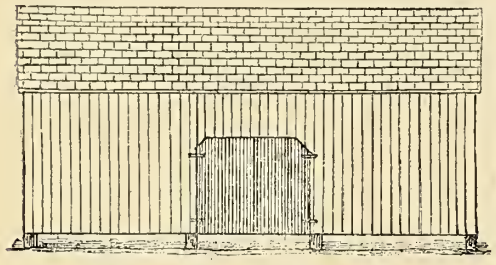


Fig. 1.—SIDE VIEW OF A COMMON BARN.

the buildings he possesses, two or three times over. I submit herewith a plan for using the original barn as a starting point, and constructing a building neat and tasteful in design, convenient of access to every part, and containing (fig. 3) sufficient room to accommodate twenty full grown cattle, three horses, from thirty to forty sheep, according to age and size, a carriage-room with space for a double carriage and single buggy or cutter, and a commodious harness-room in the corner of which is an oat box four feet square. This last is accessible by a sliding door starting from the passage way and is adjacent to the mangers, thus saving extra steps. All the animals can be fed from the head by the continued passage way, which goes entirely around the building. The hay and feed can be dropped into the passage from the barn mow, and at threshing time the rough straw can be stowed in the lofts over the stables, so as to be dropped through trap doors when needed for bedding. This remodelled plan includes also a root cellar for eight hundred bushels, connecting direct with the passage way of the cattle stalls. Where roots are not raised, but corn alone is fed, the cost of this cellar (about one

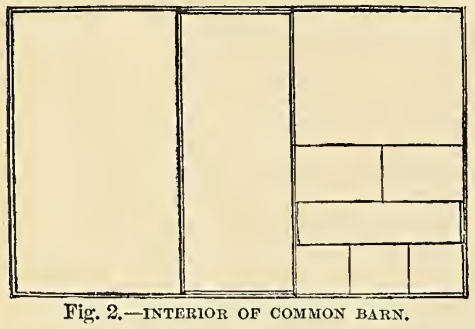


Fig. 2.—INTERIOR OF COMMON BARN.

hundred and fifty dollars) can be saved and deducted from the estimate. Figure 3 gives the ground plan, and figure 4 shows the side elevation, representing the remodelled barn with internal arrangements which are described as follows:

This model can be worked on to any barn of the form shown in figure 1, no matter what the dimensions. A difference in size will be all the alteration required from the plan here shown. The most of these old barns are set on blocks about two feet above the ground; the new portion I have elevated only six inches as it is warmer and gives more room. The ceilings should be seven feet high by the plan, and no sill should be placed across the space opposite the barn floor, in order to leave room to drive out through from the barn.—In the estimate I have given the market prices of lumber here. In this section the owners take out all the scantling and rough lumber themselves, and this reduces the cost about fifty dollars. This, with the cost of the cellar, if omitted, makes two hundred dollars, leaving the expenses of remodelling the barn as given below about five hundred dollars.

If all the room I have arranged for is not required on the farm now, a part only need be erected at first, and the plan be worked upon until the whole is completed. This I consider is one of the best features of the remodelled plan herewith given.

Materials and Cost.

2,500 feet scantling and lumber for inside work; 2,508 feet of 11 feet siding; 153 feet for gables; 2,664 feet of 18 feet flooring; 1,075 feet of rafters, viz., 28 of 21 feet long, 16 of 20 feet long, 37 of 19 feet long; 162 feet of rafters for cellar—a total of 11,562 feet at $14 per 1,000 feet	$161.87
3,250 feet of sheathing @ $10 per 1,000 feet	32.50
2,736 feet of lofting @ $10 per 1,000 feet	27.36
13 windows, 2 by 3 ft., @ 80c.; 2 of 2 by 2 ft., @ 60c.; 1 window, 3 by 3 ft., $1.25; 500 scantling for braces, $7	11.60
27,500 shingles, @ $3.50; 18,000 bricks, @ $4	8.25
Hinges, nails and battens, about	169.25
Cellar: mason work and lime, $60; carpenter, $200	50.00
Total cost	260.00
	$720.83

Dairying in California.

BY M. E. BAMFORD.

While Eastern dairymen are supplied by nature with green grass all summer, in California the grasses dry and the hills look brown by the middle of June. The general practice of dairymen in the Sacramento and San Joaquin Valleys is to leave their families about May 1, and take all their cows, calves, pigs and poultry, to the higher regions of the Sierra Nevada, six to seven thousand feet above the sea, where, the snow having melted, green feed can be found until September. Some dairymen, however, keep their cows in the Sacramento Valley and feed during the dry summer, in the table lands skirting the river, placing their butter and cheese on the river steamers for the San Francisco markets.—One favorite spot for the migrating dairymen is the country around Lake Tahoe. The little valleys about the lake are dotted in summer with their cabins.—Here may be found the latest inventions for butter-making, such as patent churns, setting pans, and a variety of dairy appliances. By this change of location, green pasturage is lengthened to nine months instead of five in the valleys.

The mountain dairy products are often sent over the line into Nevada, which draws largely upon California for such supplies. Although these mountain ranges are sometimes cropped very closely, the next year the grass is as thick as ever, and dairymen say the pastures are just as good as when the country was first settled. The cows eating these natural grasses average one hundred and fifty to two hundred pounds of butter yearly.

The capital now invested in dairying in California is fifteen million dollars, and the annual products about nine millions, giving employment to some six thousand men.—This industry began about 1849, when the gold fever was at its hight. Some men observing how difficult it was for miners to obtain supplies, and how much they would gladly pay for milk or butter to add to their rough fare, established dairies and immediately found themselves in a paying business, more profitable to many than working in the mines, as cows then cost only five dollars apiece and land was cheap.

It is customary in this State for dairymen to rent the cows with the land, about eight acres with each cow. The yearly rent per cow varies from twenty dollars in hilly portions to thirty-two dollars on more productive soil. The tenant pays his rent with a certain number of calves and some hay, the proprietors supplying the necessary buildings.—About seven thousand tons of butter and fifteen hundred tons of cheese are made yearly in this State. [See census figures on page 56.] The largest butter dairy in California is in Humboldt county, comprising over thirteen thousand acres, and over two thousand one hundred cows. Del Norte, the most northern coast county, also ships large quantities of very good butter to San Francisco—sometimes a hundred tons of butter a year. The price varies in San Francisco from twenty-five cents per pound in April to forty cents in October, this difference of course depending very much on the condition of the indigenous grasses.

Those counties nearest to the Pacific are naturally best suited to dairying, as the constant fogs take the place of rain and keep the grass green from February to September, a much longer period than in other parts of the State. The lower summer temperature also favors dairying in these counties, such as Marin, San Mateo, Humboldt and Del Norte. San Mateo county is the chief source of milk for San Francisco, and day by day, on the country road, may be seen a long string of wagons bound cityward. This county has the largest milk ranch in California, at San Bruno, fourteen miles south of San Francisco. Its two thousand seven hundred acres occupy the entire width of the peninsula from the ocean to the bay. Here five hundred to six hundred cows are milked twice every

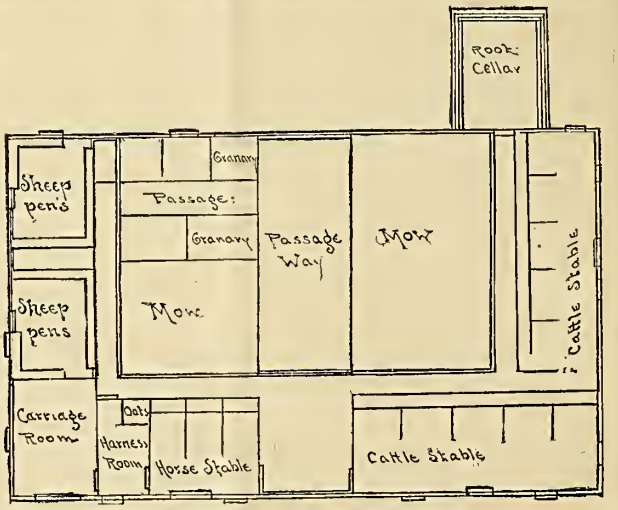


Fig. 3.—GROUND PLAN OF REMODELLED BARN.

day, and the milk put in three gallon cans. Two hundred of these are packed into a huge thorough-braced wagon, and, at noon or at midnight, six mules start with the load, and reach the city in two and a half hours. This dairy supplies about four hundred thousand gallons of milk yearly, most of it being sold in San Francisco. Such large dairies cannot depend on the natural grasses, and two thousand acres of this ranch are devoted to rye and orchard grass. Many raise Alfalfa, or Chilian clover, (lucern) for their cows. The *Alfilerilla* and bur-clover are indigenous plants, which are most useful to dairymen. In some exceptional south-

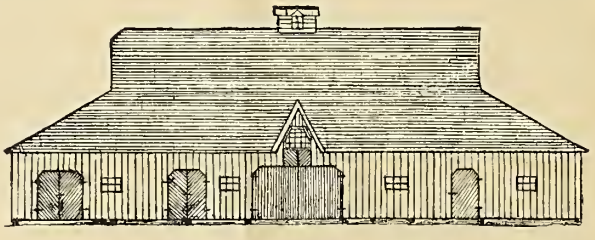


Fig. 4.—SIDE ELEVATION OF NEW BARN.

ern sections of the State the wild oats occupy large areas, and the cultivated kinds are also grown.

In San Francisco, as well as in eastern cities, cows in the suburbs are fed on exhausted malt from the breweries. While this increases the flow of milk, its unwholesomeness is seen in the short lives of the animals, which in a very few years become unfit for milking and are sold to the butchers.

The cheese counties of California are San Luis Obispo, Monterey, Lake, Mendocino, and Sonoma, (the first named being the largest cheese pro-

ducer on the coast,) these five counties last year making above eight hundred thousand pounds.

The old Spanish cattle, formerly found in such numbers on the plains between San Luis Obispo and San Diego, have almost wholly disappeared. A few mountain ranches have specimens of these long-horned, wild-looking animals, but the great herds of mustang cattle which twenty years ago so covered the plains of Southern California that one could ride for hours, meeting nothing but endless troops of the wild creatures, are gone. In former days that part of the State was divided into leagues instead of miles, and a cattle ranch comprised from nine to thirty-three square miles of land. But these great tracts have been sub-divided and many of them are now in the main used as grain land.

California, however, in common with most of the Pacific States, raises large numbers of neat cattle for beef. Great herds of these roam over the uninhabited portions, the animals of different owners mingling together and are only distinguished by the different brands. At the *rodeo* in the autumn of every year, the herds are separated and the calves marked the same as the cows they follow. These cows are never milked and are not very tame. As these herds live on the natural herbage, their appearance varies very much at different seasons of the year, being fleshy in March and June, and thin in August, and sometimes starving to death before spring grasses appear. One of the largest cattle ranches is on the west bank of the San Joaquin River. It contains seven hundred thousand acres, and is owned by a single firm. This is an exception to most ranches, in that part of it is irrigated so that Alfalfa (Lucern) can be raised to supply the sixty thousand cattle there pastured.

Two Sleds in One.

Mr. Chas. H. Wiley, Martinsville, Me., sends us a rough sketch of his sled, which is durable and cheap, as he has two sleds in one, and uses it for

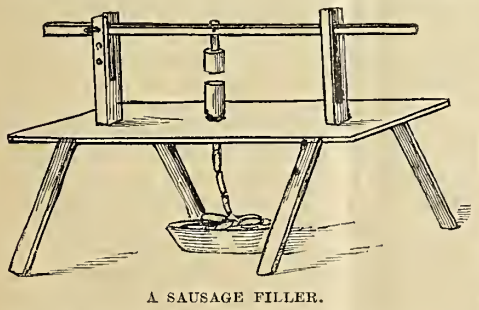


CHEAP AND DURABLE BOB SLEDS.

oxen or horse. The runners are of one and a half inch plank, ten inches wide; bunks (benches) of four by six inch timber; shoes, chilled iron; raves and other ironing, good wrought iron. He prefers guy chains to a tongue for working in the woods and among stumps, as it clears them better. All fastenings are screw bolts and easy to repair. Length of runners at the bottom is four and a half feet, at the bunks four feet and two inches; runners three and a half feet apart. The entire cost is about thirty dollars, and it will take two tons anywhere.

Home-Made Sausage—Filling Press.

Mr. C. B. Beatty, of Fraser, Mich., sends us a sketch and description of a simple bench and lever arrangement to be used with the common sausage



A SAUSAGE FILLER.

filler which lightens the work so much that even a small boy can use it with ease, and any person can get up the whole apparatus at home with little or no expense. Mr. B. says it is much used by his neighbors, who esteem it very highly. An inch thick pine board, a foot wide and four and a quarter feet long, is fitted with four legs, two and a half feet long, notched into its edges, with the feet spread outward to give firmness. Two oak standards, eighteen inches high, are set thirty-four inches apart, with a slot down the middle of each for the admission of an oak lever eight feet long. The left upright has three or four holes above each other for the lever pin, as shown in the engraving. The tin filler is set into the bench nearer the left upright, and projects below for receiving the skins. Above the filler is a follower fitting closely into it and its top working very loosely in the lever to allow full play as it moves up and down. The engraving shows the parts and mode of working.

Manual Arts in Farming.

So far as farming is of the nature of a trade, its successful pursuit requires skill in certain fundamental arts. It is true that the extensive use of machinery has rendered some arts formerly important, of comparatively little consequence, as, for example, the art of reaping grain with the sickle, the kindred arts of using the grass scythe and grain cradle. The combined reaper and mower, driven by horse power, has superseded both. Apparently the time is near at hand when the self-binding harvester will entirely dispense with the art of binding grain by hand. But this steady change from hard labor to machinery merely changes the kind of skill needed. Indeed, the skill now required to run machinery successfully is of a higher kind and more difficult to acquire than that of the manual arts superseded. To use the sickle or scythe requires little more than patient repetition, and blind following of example. To manage a self-raking reaper or a self-binding harvester needs not less patience and care, but also higher mental qualities, a certain steady thoughtful observation, good judgment, and a development of what may be called the mechanical sense, a something which enables a person to keep in his memory all the parts of a machine and their adjustments, and allow none to get or remain out of order. There is greater need here for that cultivated intelligence which a good education alone gives. The modern farmer's son who has had a few month's study of mechanics and mechanical movements, is much better prepared for his work than one without this limited amount of training. The essential principles of mechanics which underlie the knowledge of the proper use and adjustment of machinery, may be learned by any ordinary boy much easier than circulating decimals or the arbitration of exchange; and when they are learned, they will be a thousand times more useful to him.

But aside from the more complicated kinds of farm machinery, there are a good many simple arts, useful to know and not specially difficult to learn, yet often poorly mastered. Among these may be mentioned hitching up and driving a team in the best way, adjusting and holding a plow, building hay and grain stacks, milking a cow, dropping seed with a horse planter, cultivating corn, grinding a mower knife, marking out a straight furrow, shearing a sheep, husking corn, and many other things. The difference between great skill in these arts may be well illustrated by the case of two men, both strong and willing, whom the writer once employed to husk corn. One would husk and crib sixty bushels (of seventy pounds each) every day; the other seldom did half as much. The first in a trial effort, in ten hours of one day, husked one hundred and twenty bushels; the other could not husk fifty to save his life.

Might not greater interest in rural life be imparted to our boys by well-directed efforts to cultivate the highest development of skill in these useful arts? Suppose a county fair to select a half-dozen of them and offer a series of prizes to those young men or boys who should excel, in all or some of them. Is it not possible that such a course would be more useful to the community than the fast trotting which now is usually the only form of activity in which the management of our fairs take much interest. Let intelligent friends of rural improvement try some plan to furnish a substitute for the demoralization so closely connected with horse racing at the fairs. The kind of competition suggested would provide an interesting series of entertainments at these gatherings, and also stimulate effort in the way of learning useful arts.

A Simple Automatic Wagon Brake.

Horses or oxen, as well as men, can put forth tremendous efforts for a brief period, but when prolonged, as in drawing a heavy load up a long hill without resting at short intervals, the strain is unnatural, and horses are frequently wind-broken in this way. Very few farm wagons are provided with brakes, and these need close watching and the attention of the driver, who may often mistake the approach of exhaustion in the team. I send herewith a home-made simple contrivance (fig. 1) that acts automatically, stopping the descent of the vehicle whenever the team stops pulling, without any act of the driver. I made mine from a broken

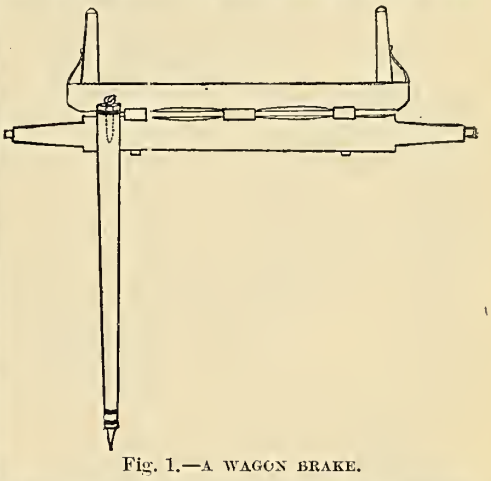


Fig. 1.—A WAGON BRAKE.

handle of a pick hand-spike, sawing off the handle four feet from the pick. The blacksmith made two bolts of three-quarter inch iron linked together (fig 2), one provided with nut and screw to go through the hind bolster of the wagon, and the other sharpened a little to go into the end of the stock. By attaching this near one end of the bolster, when not needed it can be swung up between the box and wheel so as not to interfere with a team following, or be needlessly worn at the lower end. When dragging on the ground it of course stops any backward motion. For convenience a small rope may extend from near its lower end to the driver, who can then lift it at pleasure without leaving his seat, as when for example he may wish to back the wagon. A shorter piece may be at-

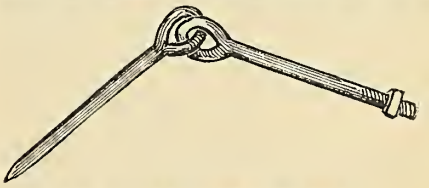


Fig. 2.—THE CONNECTING LINK.

tached to a sleigh in a similar manner. A straight bar of iron of proper length, without any wood, would answer, and be but little expense at present prices of that metal. For ordinary loads a five-eighth or three-quarter inch bar, a little hard tempered, would be stiff enough. A three-quarter inch iron rod four feet long weighs about twenty-one pounds.—Unless the bolster be strongly bolted on it might be started by a sudden heavy pressure. The brake might be attached to the axle, if the bolster is not firm enough. W. D. BOYNTON.

THE ICE CROP.—One of the leading crops of the country is housed during the winter season. The people of the city sadly feel the effects of a poor ice harvest. The farmer should lay in a year's supply of ice at the earliest opportunity. It costs but little to harvest, saves summer foods, and adds very greatly to the comfort of the household.

Poultry-Yard Convenience.

Figure 1 represents a combined portable coop and yard for setting hens, and when they are with the young chicks. The part *a*, is enclosed with half-inch boards, with a hinged cover, *m*, and a movable slide, *c*, opening into the little yard.

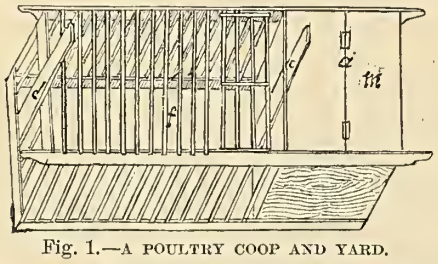


Fig. 1.—A POULTRY COOP AND YARD.

Another sliding door, *d*, is for entering to the yard from the outside. Chickens, eggs, and hen can then be handled through the cover. The dimensions are two-and-a-half by six feet; hight eighteen inches. The resting-place space occupies one-third, leaving four by two-and-a-half feet for a yard. A tight floor keeps the moisture from the nest and brood. After the chickens go into shelter for the night, the sliding door, *c*, should be pushed down. This movable coop allows a frequent change of pasture for the chicks. The strips to which the laths are nailed, are four inches wide. The two at the top have a continuation at each end of eight inches, to serve as handles for moving the coop. Figure 2 represents a covered feeding table, which allows the chickens to eat at any time under shelter, but prevents them from wasting any of the food. The trough is one foot wide, and four feet long. The table *a* is eighteen inches wide, and four-and-a-half feet long. The roof, *p*, is two-and-a-half feet wide at the base and five long, which gives protection enough to shelter the chickens while eating. The trough, *t*, is open at the bottom, *o*, allowing the grain to work through upon the table below, keeping up a supply as long as any remains. A narrow strip, *s*, nailed along the edge of the table, keeps the chickens from working the grain out upon the ground. The table stands upon four legs (not shown), which also support the trough and roof. The roof can be lifted off for filling the trough with grain.

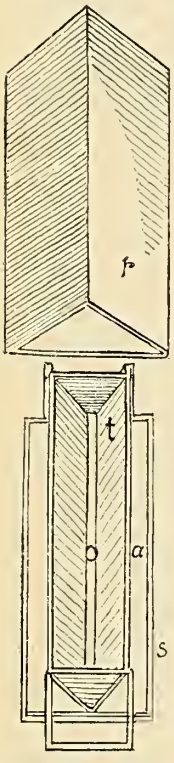


Fig. 2.—FEED BOX.

Sowing Spring Wheat.

PROF. S. R. THOMPSON.

In the spring wheat regions of the West and Northwest, sowing will begin in the latter part of this month, or early in the next. Old settlers know the advantages of sowing spring-wheat as early as possible. New comers who are not too knowing to heed the results of experience, will get in their seed as soon as the frost is out sufficiently to allow it. Where the ground was fall-plowed for wheat, as should always be done, the seeding may almost always begin by the first week in March. In western Nebraska wheat is frequently sown by the middle of February; in the eastern part of the State a little later. When the ground is dry and mellow, as it usually is, wheat may well be covered deeper than in the East, and deeper on newly broken than on old land. The best crops of wheat the writer ever grew, were the first crops on new land, broken deeply, and stirred still deeper the season before. The seed was covered with a four-shovel corn plow, to an average depth of three inches. In one case a part of the field was seeded in this way, and another sown broad-cast by hand and harrowed in; the former yielded twenty-eight, and the latter twenty-three bushels per acre. On moist land, or that broken many years before, or quite moist, shallower seeding does best. The deeper seeding suffers less from hard frosts, always to be expected after spring wheat is in. In certain seasons wheat seems to do better when drilled in, which is always better to secure uniform depth; but on old land the spaces between the rows furnish such a favorable place for weeds to grow, that on the whole, broad-cast sowing seems to be the most satisfactory, when the seed can be covered deep enough. It may be suggested to new comers that usually wheat is grown profitably only on new land. On that under cultivation four or five years, some other crop is more likely to pay. This is for the latitude of Nebraska. In Dakota it may be different; time will tell. It is always dangerous, sometimes ruinous, to confine farming to a single crop, and particularly so with wheat. The outlay for seed, harvesting and threshing, is so great that a poor crop results not merely in loss of time and labor, or of prospective profits, but of capital invested. And finally, on this and kindred questions, farmers new to the West are advised to listen to the opinions, and profit by the experience of those who have been longer on the ground. Those who are too knowing or too conceited to do this, may have occasion to recall the saying of wise old Ben. Franklin: "If you will not hear experience, she will rap your knuckles."

Fish and Fruit in Florida.

BY ROBERT BARNWELL ROOSEVELT.

At Jacksonville we felt almost as much at home as if we were in New York. We found friends there, we made others, and enjoyed ourselves so thoroughly that it was only the imperative demands of sport that compelled us to move on. Near so large a city there is naturally not much to shoot or to catch. There are innumerable ten-pound cat-fish which our companion, Seth Green, the fish culturist, was never tired of taking. He insisted they were excellent eating, a matter in which we allowed him to have his opinion without contesting the question. The water on the surface is fresh, and some black-bass can always be caught in the vicinity. The condition of the water in the St. John's is different from that of any other stream with which I am familiar. Even up to Pilatka, seventy-five miles above, the surface water is absolutely fresh, while near the bottom there is a current so salt that crabs are caught in the shad nets. The salter fluid seems to be denser and heavier than the other, and will not mingle with it, so that we have the anomaly of both fresh and salt-water fish being caught at the same time and place.

Into the St. John's there empty at every few miles tributary streams that are rarely ascended by the visiting sportsman, and where the birds and fish exist in their primeval abundance and fearlessness. It is unnecessary to specify these by name, or to particularize any as better than others, for they are essentially alike. We could not explore them all, but those which we did, we found filled with fish and with a fair amount of game. It was too early in the year for alligators, if they can be called game, to show themselves, but birds were to be had plentifully, and fish were simply innumerable. Of these we killed so many that we had to salt them down. There is an additional interest, the interest of new explorations, in ascending the secluded rivers, and I advise every tourist who visits this portion of Florida in his own conveyance, not to omit going up one or more of them.

This was a late season, shad were running, and we had them continually on our table, but roses were not in full bloom in the open air, and as for strawberries, which are usually abundant by New Year's, they had not come in at all yet. We had bought up all the curiosities that we could distribute among our Northern friends; we had played with the baby alligators in the jewelry stores; we had listened to the first installment of the wonderful Florida stories; we had dined at all the excellent Jacksonville hotels, and were ready to withdraw once more from civilization. So the Heartsease spread her sails again, and started up the river. I say "up," because by the current our course was up stream; but it was down by the map. We were going south, the St. John's being one of the few of the North American rivers which seem to run the wrong way, that is, from the south to the north. In our short stay in Jacksonville we had learned that alligator-tooth jewelry is occasionally made of celluloid; that one of the best drinks in the world of bar-keeping is a punch compounded from the native sour orange; that Florida stories are always reliable, even when they assert that mosquitoes are so abundant that hogs make meals of them, or inform us that the favorite game fish of Florida, the tarpon, jumps six feet out of water when he is hooked, or that sharks will seize a man if they have to leap as high as the deck of the yacht to do so. In leaving Jacksonville, we supposed we were leaving all this behind us, not knowing that Florida is full of quaint jewelry made, as the jewelry of no other part of the world, out of fish scales, saurian teeth, sea beans, shells, orange tree woods, and sharks' molars; that everywhere there are wonderful stories which only differ from one another in size; that palmetto hats were to be bought in every village store, and that sour oranges hang from innumerable trees, valueless for traffic, and only begging to be made into nectar fit for gods.

By the time the Doctor had made these philosophical reflections, Heartsease was tearing along before a favoring breeze past Mandarin, past the Magnolia Hotel and Green Cove Spring; past Tocoi, the terminus of the St. Augustine Railroad, till she made anchorage by nightfall off Pilatka. On the way we had put up many ducks, and seen the cows up to their backs in water feeding off the cabbage at the bottom, and thrusting their heads clear under to get it, and we began to realize that in the end we might come to believe anything of the wonders of this wonderful land. On the last day of our stay in Jacksonville, we had given a little lunch on board, and to show what dinners can be got up there, and how easily, I will reproduce the bill of fare. Everything had been prepared on board, and although our cabin could only seat twelve, we placed before the guests cold turkey, beef and tongue, chicken salad prepared by the Doctor in most artistic style, stewed oysters, roast potatoes, radishes, and for dessert banana salad—an invention of the better part of the party,—Dummit Grove oranges, sapidillas, and grape fruit, with *pieces montées* of palmetto leaves and sour oranges *en branches*. There was a little *paté de foies gras* also, but that need not be counted, because it came from the North.

We found that when we had reached Pilatka the stories, instead of diminishing, developed yet more astonishing proportions. The mosquitoes, that the hogs fed on at Jacksonville, put out the head light of the locomotive at Pilatka, extinguished a bonfire, and made nothing of the negroes' "light wood torches;" the tarpon of Jacksonville could only jump six feet high when hooked, while the tarpon of Pilatka, without being hooked, bounded clear over the rail of the steamboat Seth Low, which was ten feet from the water, struck the captain in the stomach and knocked him down. We had not been at Pilatka two days, before we were ready to swallow any mental hallucination, so rapidly does faith grow in the glorious and balmy air of Florida.

If Jacksonville had been attractive, Pilatka was equally so. Opposite to it is the famous orange grove of Mr. Hart, which we had to visit, and where we ate our first oranges plucked by ourselves from the trees, besides tasting mandarins and tangerines, lemons, limes, guavas and bananas, and that best of all oranges, the grape fruit. There were great plantations of bananas, which grow by 'suckers from the roots, and increase like weeds. They have

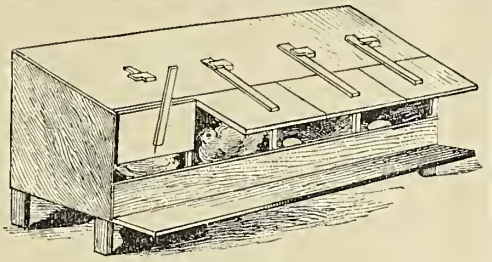
to be three years old before they bear, and the development of the flower and fruit, which was going on while we were there, was a pretty sight. The top of the stalk turns over and produces a huge purple flower of a single leaf, as large as the hand of a giant. From under this large leaf starts a circle of small sprouts like fingers. The big leaf falls off, but from the ends of the fingers burst other much smaller purple flowers. Then below the row of fingers grows another large flower like the first; it also uncovers another row of fingers, and so on till the entire bunch of bananas, as we know it in the market, is formed. Even then the flower point does not cease growing, but exhibits flower after flower, which are merely ornamental and do not result in fruit. Sprouts start so freely from the roots, that the young bushes have to be cut away every year with scythes, or they would become crowded and the fruit degenerate. Every day that was spent studying the wonderful productions of Florida, every new tree or bush which attracted our attention by its beauty or its oddity, every new species of fruit which charmed our palate with its originality of flavor, made us more in love with this interesting country, and wish that it and its accompaniments could only exist in a colder climate. There was but one feeling in the minds of the party on leaving Mr. Hart's plantation, which was a wish that each of us could own an orange grove, and have it close at home.

The stories concerning the dangerous nature of the snakes of Florida are probably exaggerated, as we saw no more of them than we would have seen in the same amount of country life at the North. The negro children bathe off the docks at Pilatka and Jacksonville as a common thing, and later in the year, when the peril from the snakes is greater. There are spots where, as I have said, they are to be dreaded, and we heard well authenticated stories of men being snake bitten; but on the other hand old hunters, who were in the woods most of their time, told us they were never troubled by their attacks, and the camping out parties, which we encountered all over, seemed not disturbed by them. Still, while on the subject, I will give the prescription which was kindly furnished us by Dr. Kenworthy of Jacksonville, and which will doubtless prove a better cure than the common one of getting drunk on whiskey: mix two tablespoonfuls of the carbonate of ammonia with enough spirits of camphor to make a paste. Apply this on a rag to the bite, changing the rag as often as it gets discolored. Our medical associate gave his approval to the remedy, and if those two authorities could not cure a snake bite, no one can.

In spite of the beauty of the country, there is a sense of desolation about the wilder parts of Florida. The great trees covered with moss, and many of them going to decay; the dull, sluggish rivers with slow discolored current; the low lands never rising above a shell-mound of twenty feet hight, combine to produce a feeling of dreary solitude. This was particularly noticeable on the journey to Southern Florida, through the endless swamps, marshes, and reedy islands which border the narrow inland streams, and was only occasionally broken by passing a town, or one of the few country seats that are to be found on the unhealthy shores. Nor do there seem to be many water fowl on the Southern Atlantic Coast, until you pass to the south of St. Augustine and reach the neighborhood of Indian River. In making the trip up and from the St. John's, we only saw, besides the ducks and English snipe, the bay-birds of which I have spoken, and a number of the handsome and imposing white herons. These stood in solemn grandeur on the shore of some creek, and seemed too glorious to shoot. Occasionally, however, we could not resist, and had to murder them for their loveliness. Then one of us would hide himself among the reeds on the shore, while the other would go to the extreme end of the line of stately creatures, and put them up. They fly slowly along the edge of the water, and if the sportsman is well hid, there is no difficulty in getting a shot at them. They should never be killed unless it is to set them up and preserve them in a cabinet.

A Nest Box for Sitting Hens.

The nest box shown in the engraving, can be made to contain as many nests as desired, and be placed in the poultry house or any other convenient place. When a hen is set in one of the nests, the end of the lever is slid from under the catch on top of the box, and the door falls over the entrance to keep out other hens. They rarely molest the sitting hen after she has held exclusive possession three or four days, and the drop may be raised



BOX OF HENS' NESTS.

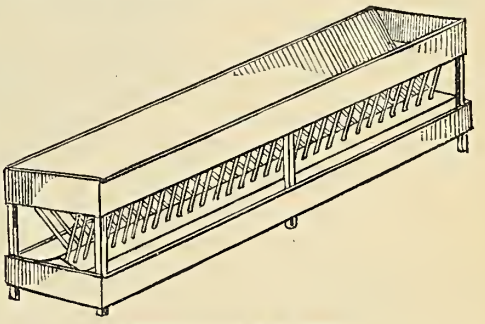
again. The box legs should not be over six inches long. The step in front of the nests, four to six inches wide, is a continuation of the bottom of the box. It is a vast improvement on old barrels, broken boxes, and other hens' nests generally used.

Prepare for Early Vegetables.

Very few farmers care to give the attention needed by a hot-bed, and trust to sowing the seeds of vegetables in the open ground. As a consequence, farmers rarely have early vegetables in their gardens. There is a method by which vegetables may be enjoyed from one to two months earlier than by sowing the seeds in the garden, and costs very little trouble. This is to raise the plants in the windows of the kitchen or other room. Our old-time readers understand this method, and we regard it of so much importance that we bring it especially to the attention of our many new subscribers. Plants sufficient for the family garden can be raised, usually of better quality than in a hot-bed as generally managed, and they will interest the young people who always like to see things grow. Boxes for the purpose are made of half-inch stuff well nailed together. Their length should be suited to the width of the window, a foot wide, and the depth of three or four inches. In modern houses window sills are rarely wide enough to hold such a box, and it is well to suspend it by means of a wire at each end. Drive in a screw near the upper edge of the end of the box, and near the side the farthest from the window, and a corresponding screw in the window casing. A piece of copper wire twisted around the screw in the box, and its other end made fast to that in the casing, will hold the box securely. Those who regularly use such boxes, provide the soil for them the autumn before. The lack of such provision need not deter any from trying to raise plants in this manner. Earth from the woods is a most excellent material for filling the boxes. This collects in the hollow places, and can usually be gathered in a mild time, even in winter. If woods-earth is not to be had, take advantage of a thaw, and scraping up some garden soil, place it in a heap in the cellar until it is dry enough to use. If at all heavy, it may be made porous by adding sand, or, what is better, fine moss. Procure some sphagnum or peat-moss, such as nurserymen use for packing; dry it thoroughly, and rub it through a coarse wire sieve. One part of this fine sifted moss to four or five of soil, makes an excellent material for seed boxes, as it will not become packed by the needed waterings. As a rule, the seeds should be sown in them about six weeks before the plants can be safely set out in the open ground. When the seedlings are large enough to handle, usually when they have made two rough leaves—those after the seed leaves—they will need transplanting into another box of similar soil, setting them an inch apart each way. Plants in the boxes must have water as they need it, and on warm days they may be set outside in a sunny sheltered place, bringing them in before the air becomes chilly. The vegetables usually started in window boxes are early cabbages, cauliflowers, lettuce, and tomatoes; in April, egg-plants and peppers may be thus sown.

A Sheep Rack.

W. E. Jones, Smithfield, Pa., sends us a sketch of a sheep rack, the dimensions of which are: length twelve feet, width two feet nine inches, and hight three feet. The materials are: ten boards twelve feet long, eight of them ten inches wide, one seven inches wide, and one eight inches wide; four boards two feet nine inches long and twelve inches wide; six posts three by four inches, three feet long; sixty-four slats, sixteen inches long and one inch square; and two strips twelve feet long, and two-and-a-half inches wide. Nail the two narrower boards in the shape of a trough, turn it bottom up and draw a line through the middle of each side. Set the dividers to four and a half inches, and mark along the lines for holes with a three-quarter-inch bit, and bore the narrow strips to match. Set the slats into the trough, and fasten the strips on their upper ends. Nail two of the boards

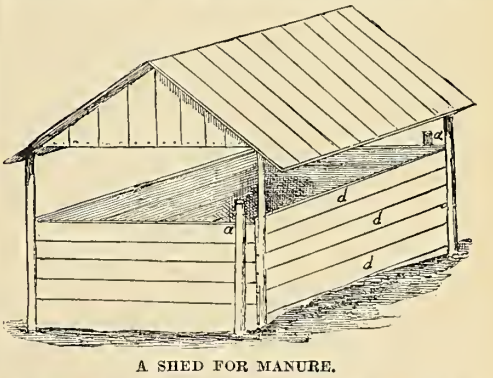


FODDER RACK FOR SHEEP.

to the posts on each side, as seen in the sketch, and also the short boards on the ends. Lay in a floor one foot from the ground, and set in the trough as shown in the above engraving. Fit a board from the slats up to the top of the outside of the frame. The floor need not cover the middle under the trough.

A Cheap Manure Shed.

Many waste much of the value of stable manure by throwing it out of doors to be acted upon by sun and rain. We recently saw a very cheap, sensible method of almost wholly preventing such loss. A board roof, ten feet square, is supported by posts eight feet long above ground, which are connected inside by a wall of planks (or of poles, as the one examined was). Near the post at each end stakes *a*, *a*, are set, against which one end of the



A SHED FOR MANURE.

end planks rest. This allows the front planks, *d*, *d*, to be removed in filling or loading. It is placed near the stable, preferably so that the manure from the stable can be thrown directly into one corner, whence it is forked to the opposite corner in a few days, to prevent too violent fermentation. A frequent addition of sods, leaves, and other materials that will decompose, will increase the heap, and improve its value, supplying a manure superior to many of the commercial fertilizers, at less cost.



Bees in Winter Quarters—Dysentery.

BY W. Z. HUTCHINSON.

Bees sometimes die of starvation; it is possible that weak colonies, left unprotected on summer stands, have frozen to death; while it is also possible, though rather doubtful, that they have been smothered during the winter; but the greatest obstacle to successful wintering is the so-called "dysentery" or "bee-cholera." All other losses combined are but as a drop in the bucket compared with those caused by this malady.—To sustain life and keep up the animal heat during the long cold winter, bees necessarily consume food, and in time the intestinal canal becomes filled with fecal matter which bees are disinclined to void in the hive. They wait day after day for a rise in temperature that will enable them to fly in the open air and relieve their over-loaded intestines. If confined too long their abdomens become fearfully swollen, and no longer able to retain their fæces. These are voided in the hive, thus daubing bees, combs, honey and frames; and the loathsome, sickening manner in which the unfortunate bees miserably perish can be more easily imagined than described. Such, in brief, is "dysentery" or "bee-cholera."

A warm day, with the mercury up to fifty or sixty degrees, enables bees to enjoy a "purifying flight," and the surviving members of a colony, if not having suffered too severely from dysentery, will then sometimes set bravely to work and clean up their soiled plumage, and, if circumstances continue favorable, such colonies often "pull through," but are more likely to "spring dwindle," which is usually the result of imperfect wintering. The long retention of fæces so impairs a bee's vitality that, though it may live until spring, it has not sufficient strength to withstand the chilling winds encountered in its first flight.—Many plans and methods have been devised to prevent or mitigate this dysentery. One man, attributing it to cold, builds a cellar or special winter repository. All goes well for several years, but at last, on some fine spring morning, he carries from his cellar hive after hive containing only dead bees and mouldy, ill-smelling, discolored combs, while his neighbor's bees on the unprotected stands suffer no loss; and thus the "cold theory" falls to the ground. If it happens that his neighbor's hives were well ventilated, he at once adopts the "ventilation theory," and thereafter his hives are thoroughly ventilated. Again, all goes well until there comes a winter when his neighbor's bees die and his own live, and down goes the "ventilation theory."—Others have considered dampness the chief foe to successful wintering, and, acting upon this belief, they have constructed cellars in which dryness is chiefly kept in view, some even going so far as to place a bag of unslaked lime over each colony. In some seasons and localities bees have wintered admirably where the "humidity theory" was believed in and acted upon; but in other seasons and localities they have miserably perished. Chaff hives, chaff packing, etc., and various devices have been employed, and when the bees wintered well these devices have received the credit, and when they died, it is attributed to many and various causes.

Cold alone does not produce dysentery, as bees wholly unprotected in exposed situations have passed severe winters in perfect health, while others in the same situations have died before the winter was half gone. Confinement alone does not produce dysentery, as bees have been kept in cellars or special repositories five to six months without a trace of it, yet in another season they have died within three months after being placed in the same cellars. Want of ventilation does not produce dysentery, as bees have been kept in perfect health buried in "clamps," where the only air reaching them during five long months was what passed through two feet of earth covering. But then again, clamps have been opened in spring only to find every colony dead from dysentery. Dampness alone is not the cause, as bees have been successfully wintered in cellars where there were running springs, and also where the owner, believing dampness beneficial, has shovelled in bushels and bushels of snow; also in an out-door cellar covered with straw through which the snow, melted by the heat arising from the bees, has continually dripped; yet in similar damp situations bees have died from dysentery.

It has been intimated that, if bees were kept in an atmosphere sufficiently dry and warm they would void their fæces in a dry state and remain healthy, but the fact that bees have suffered terribly from dysentery in the driest and warmest of cellars, makes a "big hole" in the "dry fæces theory." Some have placed great stress upon the importance of not disturbing bees while in their winter quarters, while other equally successful apiarists open the hives and examine the bees once a week or so throughout the entire winter.

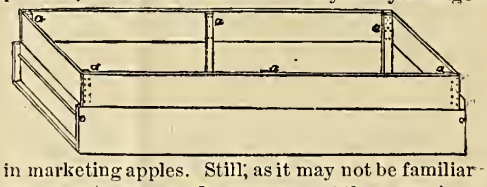
These statements may appear, and doubtless are, discouraging to bee culture; but they are facts, and why ignore them? This apparently conflicting character is what puzzles the novice, and it is only upon one hypothesis that they can be explained, viz.: that the primary cause of dysentery is in the food. Honey is not a chemically pure sweet, but contains more or less vegetable matter, as floating grains of pollen, etc. The proportion of vegetable matter differs with the season, the locality, or the source from which it is gathered. Honey (?) gathered from the juices of cracked or decayed fruits, from the cider mills, or from honey dew (the secretions of plant lice), is certainly not a pure sweet. The more vegetable matter present in honey eaten, the sooner will the intestinal canal become filled with fecal matter, and the shorter the time that confinement can be borne. Cold may aggravate the trouble, as it increases the consumption of food necessary to keep up animal heat, and thus sooner overloads the intestines, hence all protection against cold is beneficial in so far as it lessens the amount of food required. A cellar affords the best protection against cold, yet it is not always the best place for wintering bees. Thus for example, if in any season the honey contains much vegetable matter, and the combs are well filled with pollen and an open winter follows, affording bees kept in the open air many opportunities for "purifying flights," spring finds them in a healthy condition; while those in the cellar, though eating less honey, have had no opportunity to fly and discharge their fæces and have suffered severely. Had the winter been severe and the cold long continued, with no warm "spells," the bees in-doors would have suffered just the same, while those in the open air would have been almost entirely swept away. If the honey of any season is very pure, and the following winter warm, out-door colonies will be entirely free from dysentery, and those in cellars will suffer but little if any. If the winter be cold the health of cellar colonies will remain the same, while those hives left exposed out-of-doors will probably suffer to a slight extent.

With most diseases the best remedy is to remove the cause, and bee-cholera is not an exception. Unfortunately, however, there is no way of controlling the character of the honey gathered, and no cheap, practical method of determining its fitness for winter stores after it has been gathered. The only plan left is to remove the honey at the end of the honey harvest, and replace it with that of assured fitness for winter food. Such a food is pure cane sugar. As a heat producer it is vastly superior to honey, hence a less quantity is consumed, while the residue left after digestion is very slight. Time and again has it been proved that this is an almost certain preventive of dysentery, and probably the main reason for its not having been more universally adopted is the trouble of extracting the honey at a time when robber bees are very annoying, and of preparing and feeding the sugar. To this may be added, perhaps, the belief that "the coming winter will be a good one for bees." Then, too, if a bee-keeper does feed sugar to a few colonies, and all his bees chance to winter alike, he at once concludes sugar is no better than honey, and the experiment is not repeated. But could he see, as the writer has, sugar-fed colonies carried from the cellar in spring, in fine condition, dry, healthy, bright and clean, the bottom boards showing scarcely a handful of dead bees; while colonies with natural stores, standing by their side, were dead and "rotten" with dysentery; or could he see every out-door colony swept away except those having sugar stores; could he open a "stand" in spring and find the colonies with sugar stores alive, strong, and healthy, while all the others had suffered, and some had died, from dysentery—could he see all this he might believe that "vegetable matter" was the cause of the disease.

To prepare the sugar for feeding, make a syrup by adding one quart boiling water to four pounds of pure granulated sugar—confectioner's "A." Purity is important. If practicable get a candy manufacturer's assistance in buying a pure article.—But though feeding sugar prevents dysentery, it is advisable to protect bees, either by packing them in chaff on their summer stands, or carrying them into cellars, or burying them in "clamps." The decreased consumption of food by the bees will alone pay for the trouble that is thus occasioned

A Second Story Wagon Box.

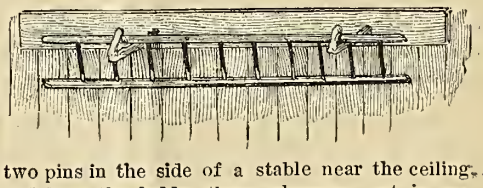
Mr. L. D. Snook sends a sketch of a simple method of keeping an extra wagon or sleigh box in position, which we used at least forty-two years ago



in marketing apples. Still, as it may not be familiar even now to some readers, we present the engraving. The top, or extra box, is made of exactly the same dimensions as the lower one and of any desired hight. Strong cleats are firmly nailed on the inside at each corner, on the sides of the upper box, extending down well into the lower one, and so closely to the end boards that it can slide neither forward nor backward. One or more side cleats are put on according to the strength of the upper boards and the pressure likely to come upon them from the character of the load in the box.

Dangerous Ladders.

If left exposed to weather, as they usually are, no one knows how soon water will penetrate at some point, as in the holes for the rounds, and produce decay and weakness, where all looks sound, and a broken limb or neck may be the result. Mr. John Wagner, of Grant Co., Wis., advises to drive



two pins in the side of a stable near the ceiling, and hang the ladder there whenever not in use. He says they "have one made of poplar, a perishable wood, which has been thus kept for five years and is to-day as sound as new."—Very good, but better still to put the pins on the side of a barn floor, when there is a place for the ladder there, as the stable is usually damp. The pins, wherever placed, need to have the outer ends elevated to keep the ladder from jarring or slipping off. We have seen the pins made from one end of a forked limb, one fork forming the hook to hold the side of the ladder, as shown in the above engraving.



THE NOTED HEAD OF A NOTED FLOCK.

Drawn (by J. A. S. Monks) and Engraved for the American Agriculturist.

American Merino Sheep.

When the first prizes for Merino sheep were awarded to American Merinos at the International Exposition at Hamburg, about twenty years ago, all Europe was astonished. The Yankee sheep took the prizes over the best flocks of Europe, and they could not understand it. After the first surprise was over, the European sheep-growers, at the close of the exhibition, did the best possible thing—they purchased the American Merinos, or "Vermont Merinos," as they were generally called, for the improvement of their own flocks, at what was then an unusual price.—The American Merinos are the result of several importations, made early in the present century from Spain, and included animals from the Paular, Infantado, Negretti, and other celebrated flocks, regarded as the finest in Spain. Of these early importations, some were lost sight of, or "run out," through careless breeding. Others were bred with great care, and by crossing with other pure flocks, under our climate and with no doubt better feeding, they gradually developed, perhaps unintentionally on the part of the breeders, into a distinct family of Merinos now known as American. The superiority of the American over the best European families of Merinos is shown, in the first place, in its greater size and weight. While the rams of the most noted of the Spanish flocks range from sixty to one hundred pounds—this last a weight rarely reached—the American Merino rams run to one hundred and twenty pounds, and upwards to one hundred and eighty pounds. These large weights are accompanied by shorter neck and legs, an increased width of loin and, what is most important, a great increase in the weight of fleece. Some flocks have averaged ten pounds of washed wool, and individual rams have greatly exceeded this weight. The American Merino is marked by strong folds and wrinkles, and some flocks have been bred with a view to these. It is a common impression that excessive wrinkles indicate purity of breed and fineness of wool, and breeders have endeavored to meet the prevailing taste for heavily wrinkled sheep. Those who look to the best returns in wool do not approve of excessive wrinkles, as they increase the difficulty and the cost of shearing. Breeders differ as to the amount of yolk desirable in the wool, and this is sometimes excessive. Fashion has much to do with both yolk and wrinkles; the present tendency is to reduce the amount of both. The American have been found to be superior to any of the European Merinos for improving the flocks of Australia. A few months ago an Australian flock-master who called upon us, said that the sole object of his visit to this country was to purchase American Merino rams. He attributed the great improvement which has lately been manifested in Australian sheep, to the introduction of American Merinos. We notice that English Agricultural writers speak of the improvement in Australian sheep by the introduction of Merino rams, but they fail to state that it is due to the American rams. In sheep-raising, as in many other branches of agriculture, Australians and New Zealanders look to America for aid and improvement, rather than to the mother country. The above engraving represents one of the best of American Merino rams, the sire of a noble stock, of which hundreds have been sold at large prices to sheep breeders, who desire to improve their flocks in our own country and in foreign countries.

Home Made Half Bushel Measure.

Mr. "C. M. R.," Albia, Iowa, writes us as follows: I was often in want of a half-bushel measure, until finally I took a soap-box brought home from the grocers. I carefully knocked the sides and bottom loose from one end, and moved this end in to make the box about eleven by twelve inches. Then borrowing a standard half bushel measure, I filled the box with oats, level full, and marked around the inside, and shaved the box down to this mark. I put a strip one inch and a half wide across each end outside to serve as handles, and strengthened the corners with hoop iron well nailed on. This makes a good, serviceable measure, is easily and quickly made, will last for years, and costs nothing. [Oats are not good material to measure with, as they pack more or less according to mode of filling, etc. Sand or wheat would be better. But it is easy and more accurate to work by measure. The length, breadth, and hight inside, multiplied together should equal one-half of 2,150 2-5, which is the number of cubic inches in a standard bushel. If you have the width and hight, for example, multiply them together, and with double the product divide 2150 and the result will be the length required. Thus, a box ten by ten inches needs to be ten and three quarter inches high to hold half a bushel—$3150 \div 10 \times 10 \times 2 = 10.75$. Eds.]

A Progressing Dakota Farm House.

Mr. E. F. Brewer's plans, herewith given, or something similar in idea, will meet the necessities of a multitude of new settlers, not only in Dakota but in every other State or Territory. As will be seen, it provides for a small house costing a hundred dollars or so, to afford a temporary abode while waiting for a first or second crop, but so erected that it can receive successive additions that will make use of the first structure, or previous additions, without loss or essential change. Mr. Brewer calls it a "progressive" farm house, but we adopt the term "progressing," implying that it is going on, making progress from time to time. The following are his descriptions sent us of the house, with a few modifications and suggestions:

Original House, Figure 1.—This is a building eighteen by fourteen feet, with eight feet

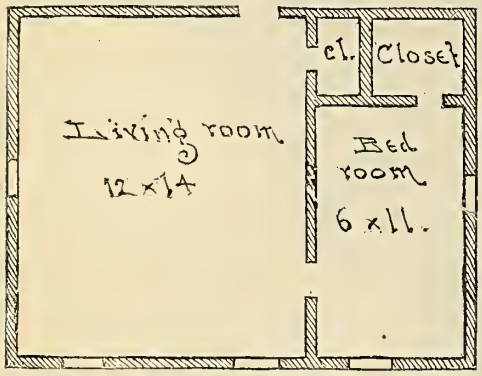


Fig. 1.—GROUND PLAN OF FIRST HOUSE.

corner posts, a "balloon" frame sheathed with rough boards, covered both on sides and roof with tarred or roofing paper. The whole cost would be from eighty to one hundred and twenty dollars, according to the local prices of building materials. The roofing paper should have a three-inch lap, and be fastened with cleats or lath, put down so firmly, that rain will not enter the seams or nail-holes. **First Addition,** Figure 2.—This is eighteen by eight feet, with corner posts six feet six inches, which we may suppose to be added the second year, or after a crop is harvested. This part is covered on three sides like the first, and then the whole covered with ship-lap or other siding. The cost of addition, and siding for both, will ordinarily be about one hundred dollars. If the tarred paper is properly put on, there will be no need of shing-

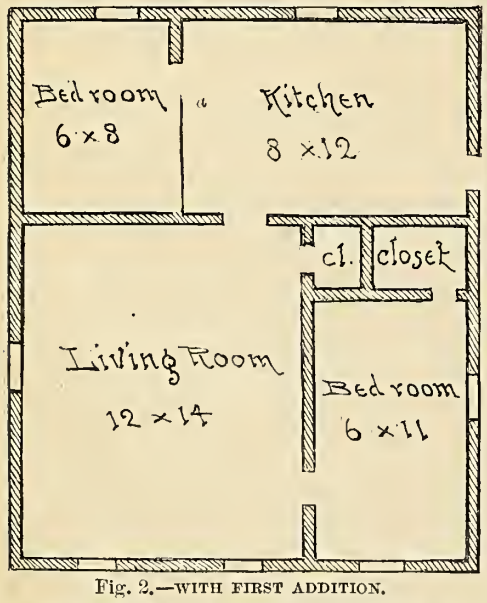


Fig. 2.—WITH FIRST ADDITION.

ling the roof. A temporary board partition is at *a*, to separate a bedroom six by eight feet. There can be a cheap board and cleat door to this, or a simple hanging curtain of chintz or calico, as it is to be removed at the next addition. We give copies of Mr. Brewer's sketches, but suggest that the outside windows and doors in the living-room and in the first addition, be so cut at first as to need no change of place in the final structure, as shown in figure 3. We have seen families on elevated bleak prairies in Dakota, who had passed one, two, and three winters in single-roomed dwellings, constructed of plank spiked to a sill and plate, set four to six inches apart, and roof boards with wider cracks between—the whole covered with thick roofing paper, laid on lapping a little, like shingles, and held in place by narrow strips at the joinings. A load of lumber, a large roll of paper, and two days' work would suffice for the whole structure. Banking outside with prairie sods, a cooking stove with pipe passing out through an earthen collar, made tight with hard mortar, and a few planks or boards for part or the whole of the floor, complete the outfit. A half dug-out sod structure protected team and cows.—**Second Addition,** or complete house, is shown in figure 3; figure 4 is the Chamber Plan, and figure 5 the Elevation. This is to be done as soon as circumstances admit, in the third year or later. The size is sixteen by twenty-eight feet; hight of ceilings in first story, eight feet; in second story, the side walls are five feet four inches, with the ceilings following up the slope of the roof, until a hight of eight feet is reached. There should be a cellar under the whole of the upright, with entrance from the store room, which has an outside door for bringing in milk and other things to be kept in the cellar: figure 3 shows the room arrangement. The temporary partition (*a*, figure 2), is removed; and a permanent partition put up to form an entry four by eight feet on the right end. A veranda is provided in front of the original structure, with entrances to the dining-room and parlor. The front windows to the dining-room should be large, and the upper half of the front door glazed, and possibly that of the door to the kitchen, or this room will not be lighted enough for reading and sewing, especially as it is shaded in part by the veranda roof and the projecting main building. In all structures, the eyes, and plenty of health-giving sun-light should always be cared for. The **Chamber** plan, and the ascent to it, are shown in figure 4. It will be noticed that the central chamber, nine by ten feet, stands partly out over the front veranda. The reader will notice that the *lower* part of figure 4 corresponds to the *left* side of figure 3. **Elevation,** figure 5. The style and outside finish may be as here shown, or any other that may suit the owner. The third year, or when putting up the main part, the entire roof should be shingled, and the inside walls lathed and plastered. All the work, except the plastering and fitting of doors and windows, can be done by the owner, if he have ordinary skill in handling simple tools. Built after the plans given, the cost of the entire structure would be about six hundred dollars. There are plenty of settlers on government land in Dakota and elsewhere, who can pay the cost of such a house out of the profits of one year's crop, and have enough left for furnishing it, or for barns and out-buildings.

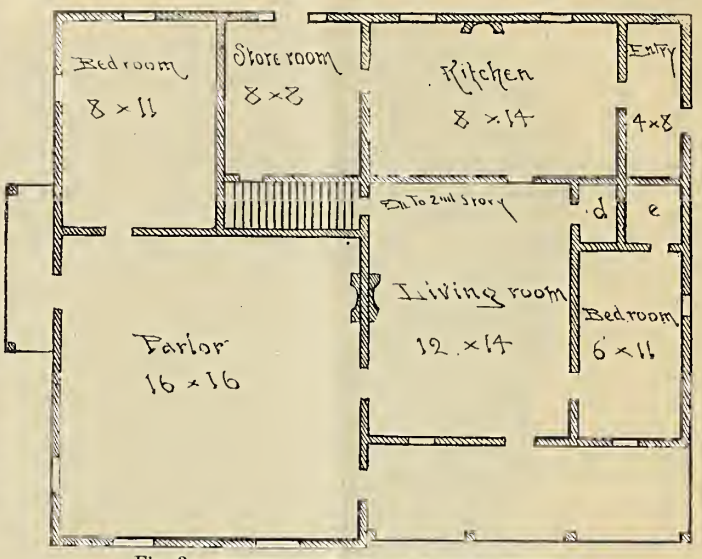


Fig. 3.—GROUND PLAN OF COMPLETED HOUSE.

WEEVILS.—Mr. E. B. Bates, Snow Hill, Md., has a "more excellent way" of killing weevils in peas and beans, than that mentioned in the December *American Agriculturist* (page 559). He places the peas or beans in an open basket, and pours scalding water over them. The water runs off so rapidly as not to injure their germinating power, but plays havoc with the weevil. Dry and bag the seeds, and keep them in the smoke house for the winter.

Little Comforts for Farmers.

We say "little comforts," but the neglect of them often leads to large discomforts, if not to actual illness. Whoever does the "chores" upon the farm, whether the farmer himself, or his help, should be able to go to the barn and do all needed work in the barn and barn-yard, and come back to the house with feet as dry as when he went out. Those who are at work in the wood-lot at chopping, or are engaged in rail splitting, will keep warm with the exercise, no matter how cold it may be. If they come home with wet feet, a cold and sickness are quite apt to follow. Dry feet, in all out-door farm-work, should be regarded as something more than a mere comfort—it is really an essential. Rubber boots will keep out all external moisture, but they confine the internal moisture, the insensible perspiration, and while they will answer for a brief exposure to mud and snow, one who wears them all day soon finds that his feet get parboiled and become exceedingly tender. For out-door winter work, strong boots, even heavy cowhides, made waterproof by a mixture which has been in use by New England fishermen for more than a century, and is in common use there in all sea-port towns, is much to be preferred. This is made by melting together four ounces of tallow, one ounce each of beeswax and rosin; when these are thoroughly melted and mixed, stir in an equal bulk of neats-foot oil. This is applied to the boots, both uppers and soles, as they are warmed before the fire, rubbing it in well with a cloth or with the hands. To be thoroughly water-proof, the boots should have two coatings. It will at the same time keep the leather soft and pliable. Those who work at occupations requiring violent exercise, should, when they come in at night, change their underclothing which is dampened by perspiration. Keeping two suits to be worn on alternate days, to be changed on returning from work, is more than a "little comfort"—it is a great one. In the domestic economy of our people, we give very small place

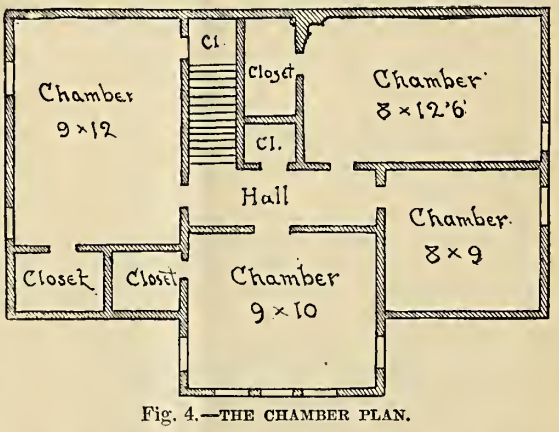


Fig. 4.—THE CHAMBER PLAN.

to soups of any kind. If one has been at some work requiring unusually violent exercise, nothing is so refreshing, or will "set one up" more quickly and thoroughly than a cupful of strong beef tea or good mutton broth. If one has to ride or walk long in intensely cold weather, the ears, the most exposed portion, are liable to be frozen and cause much pain afterwards. Ear muffs, of some warm fabric, may be worn to cover the ears, or these may be bound close against the head, where they will be kept warm by using a thin woollen comforter.

The comfort of the farmer's family should not be overlooked. Very old farm-houses, and those that are cheaply built for temporary use until a better can be afforded, are often most uncomfortable in severe weather. Windows and doors admit the external air more freely than is required for ventilation. Weather-strips made of India rubber are very effective, but they are not to be had everywhere, and require more of an outlay than is always convenient. A little ingenuity will provide substitutes. For the windows, place small wedges between the upper and lower sashes, to prevent rattling, then paste on strips of brown paper to close all the cracks, using stiff flour paste, or that made from rye meal with a little alum added. It is well to leave one upper sash to be let down, as may be required for ventilation. Doors may be made tight by tacking tailor's listing or folded strips of woollen cloth along the sides and tops. The opening at the bottom of doors is usually the largest. For these, take pieces of small scantling, of the proper length, and cover with old carpet or other convenient fabric, stuffing the side which goes against the door, with wool, cotton, or even with hay, to make a sort of cushion. While it is well enough to have the kitchen door open directly into the room in summer, it is very uncomfortable for the inmates in winter. If possible, a storm door which can be closed before the kitchen door is opened, should be provided. This may be made in such a manner as to be taken away in warm weather and stored for future use. Sleeping rooms in farm-houses are usually cold. Those who suffer from cold feet should not be deterred from making themselves comfortable through fear or being thought "old womanish." If one cannot sleep on account of cold feet, he should warm them. Bottles of hot water will answer, but are not so good as blocks of soap-stone. Blocks of hard-wood, that have no turpentine, if placed in the stove oven early in the evening, will be found excellent foot warmers. In driving in the country in very cold weather, a foot warmer of some kind will add greatly to the comfort of those making the journey.

Treatment of Animal Ailments.

BY PROF. D. D. SLADE, M. D., V. S., HARVARD UNIVERSITY.

Swelled Legs in Horses.—A correspondent from Beaver Springs, Pa., writes: "What shall I do with my colt? At times her hind legs, and sometimes a front one, swell immediately above the fetlock joint up to the knee. When I drive her it goes away, and as soon as she gets into cold water, it swells up. Sometimes it comes of itself...." The affection shows a weak circulation, dependent upon constitutional causes; or to a low condition or debility, the result perhaps of improper or insufficient nourishment, or excessive or irregular work. *Treatment.*—Avoid exposure to wet and cold, and to cold currents of air upon the legs. Dry the limbs thoroughly by hand-rubbing, and apply a flannel bandage evenly from the foot up, continuing its use as long as the disposition to swelling lasts. Never allow the limbs to remain wet or muddy; a box stall is preferable. The diet should be abundant and varied, green roots, especially carrots, daily are essential. If the animal is at all out of condition, give half an ounce daily of pulverized gentian in the food, and if this is not sufficient, try two drams of sulphate of iron instead. Exercise regularly. The chief object of this is to improve the general health of the animal.

Worms in Horses.—"C. H. M." writes from Hubbard, Ohio: "I have a horse, four years old last spring, not doing well; he is poor and thin, and feed does him no good. He has been troubled with worms, about six inches long and as thick as a small slate pencil. He drinks much water, yet seems always to be dry, and passes a large quantity of clear urine. His appetite is good. I have given him calomel and tartar emetic, followed by linseed oil, and have seen no worms since. What shall I do to get him into good condition?...." The worms described inhabit the small intestines and are common. Examine the discharges frequently to notice if any worms are still present. The diet must be generous, with a liberal supply

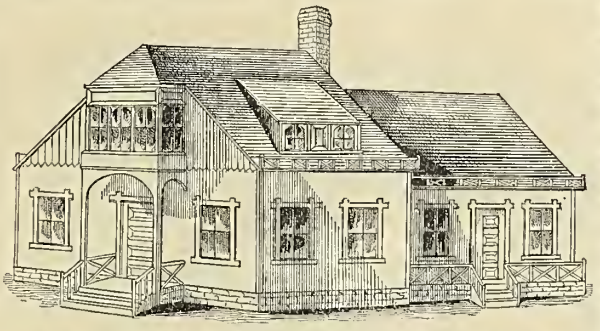


Fig. 5.—EXTERIOR OF THE COMPLETED HOUSE.—*Page* 54.

of grain, varied by using roots, or green food. Give tonics daily with the food, such as two to four drams of sulphate of iron, or four drams of pulverized Gentian, or, the same of Columbo, until a decided change in condition appears. As the animal improves in health, there will be less chance of harboring parasites. Give plenty of exercise, warm and sunny shelter, and sufficient pure water. Pay great attention to the condition of the skin by proper grooming, and have due regard to strict cleanliness of the animal and his surroundings.

Heaves.—W. G. Herron, of Carroll Co., Ohio, asks us: "What is the best remedy for heaves in horses?"....This affection is similar to asthma in man, and is dependent in most cases upon some structural changes in the lungs, induced by overexertion. It is most frequent in old horses, but may be present in the young, especially if narrow or small-chested. The treatment can be only palliative; nothing can restore the altered lungs to their original condition, except possibly in very mild and recent cases. Give special attention to the food and its administration, feeding regularly that containing much nutriment in a small bulk. Therefore avoid hay, except a very small quantity at night, and that must be sweet and free from dust. Dry grain, carrots, turnips, potatoes, or any vegetables, form the best concentrated food. Bruised grain answers excellently well. Restrict the quantity of water, and give moderate exercise daily. No food should be taken for at least two hours before going to work, and the bowels must be kept loose. The rationale of the treatment is that as distention of the stomach or the intestines by coarse food or drink, presses upon the diaphragm, and hence upon the weakened lungs, impeding their free action and causing the symptoms presented; this distention must be guarded against, by giving sufficient food in small bulk, and at such times as will less interfere with the work. Such aromatics as Caraway seed, Cardamon, or Ginger, in one ounce doses, mixed in the drink or food, often relieves the flatulence and indigestion from which broken winded horses frequently suffer.

Murrain in Cattle. Southern Cattle Fever.—A correspondent at Kings Point, Tenn., asks: "What is the cause of murrain in cattle? Are the kidneys affected? What the cure? How can the disease be prevented?"....The term murrain has been, and is still, very loosely used. It has been applied to various animal plagues, but should be restricted in our country to the Southern cattle fever or Texas fever. It is a specific disease, due to contagion which takes place through the discharges from the bowels. The kidneys, as well as the other internal organs, are generally much disorganized. As yet no medical treatment has been discovered which can be relied on as certain in its efficacy. Scientific research, still going on, may provide an antidote in the near future. Prevention can only be adopted by keeping the cattle from contaminated districts, until after the first severe frosts, which are supposed to destroy the virus.

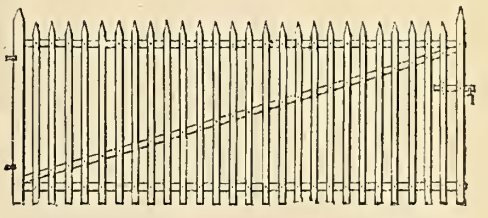
Swine Plague.—"W. S. R.," Washington, Kan., asks us in relation to a sow which had a healthy litter of pigs, but died six or seven weeks after. He says: "She occasionally staggered, but this increased so that I took the pigs away. She was anxious to eat, but could not walk six feet without falling. Her back humped up, with all her feet in a bunch under her belly. She would lie five or six hours in the same position, but when disturbed would struggle and seem as if in great pain. She grew worse, so I ended her sufferings. One of the pigs died without any previous sickness, eating well at dark, and found dead in the morning. On examination, a hole about the size of a pin was found through the large intestine, from which some of the contents had escaped."....The sow evidently died from the swine plague, which is a specific contagious disease, and very fatal. No treatment is advisable. Bury the carcass at once, beyond the reach of dogs, and watch the survivors for the first symptoms of the disease, and separate immediately from the others. The pig died from peritonitis, no doubt induced by the perforation of the intestines. The perforation was probably the result of the stoppage of the bowel at this point, by an impacted mass of the contents, or by some other impediment.

Lights in the Barn.

It is estimated that nine-tenths of all fires are caused by carelessness. Now is the season when the lantern is frequently used in the barn, and we give a word of caution. Never light a lamp or lantern of any kind in the barn. Smokers may include their pipes and cigars in the above. The lantern should be lighted in the house or some outbuilding where no combustibles are stored. A lantern which does not burn well, should never be put in order in the hay mow. There is a great temptation to strike a match and re-light an extinguished lantern, wherever it may be. It is best to even feel one's way out to a safe place, than to run any risks. If the light is not kept in the hand, it should be hung up. Provide hooks in the various rooms where the lights are used. A wire running the whole length of the horse stable, at the rear of the stalls, and furnished with a sliding hook, is very convenient for night work with the horses. Some farmers are so careless, as to keep the lamp oil in the barn, and fill the lantern there while the wick is burning. Such risks are too great, even if the buildings are insured.

A Wrought Iron Unclimbable Gate.

The engraving shows the construction of a gate intended for situations much exposed to trespassers. It is made of upright strips of flat iron,



A WROUGHT IRON GATE.

pointed at the top, and fastened by rivets to a stout frame work of iron. The "pickets" are placed two to three inches apart, as desired for the appearance of the gate or according to the size of the poultry or animals to be kept from passing.

The White Birch.

It is surprising that the White Birch is so seldom seen in ornamental planting. Perhaps the abundance of the American variety in some localities has caused it to be regarded as too common. The preference for something from a distance, and costly, has caused many of our beautiful native trees and shrubs to be unwisely neglected. The White Birch has several varieties; the Poplar-leaved (*Betula alba* var. *populifolia*), which was at one time regarded as distinct, is common from Maine to Pennsylvania, especially near the coast. Our variety differs from the common White Birch of Europe (*B. alba*) in its more distinctly triangular leaves, and in being a much smaller tree; it is seldom over twenty or thirty feet high, while the other reaches sixty or eighty feet. In all the varieties the bark is of a chalky whiteness, and the slender branches and small leaves give the tree a peculiar light and airy appearance. Its graceful habit has caused it to be called "the Lady of the Woods." One variety, the Cut-leaved Weeping Birch, is especially beautiful; its branches are more pendulous than the others, while the deeply cut or lobed foliage is exceedingly light and open. One point in favor of these trees is, they all flourish in the poorest soils, though they grow faster in rich ones. Our native variety, so seldom used in planting, shows with fine effect when seen in contrast with the oaks and other trees having heavy, massive foliage. As a fuel, the White Birch does not rank high, but it makes excellent charcoal. On account of its rapid growth, and the fact that it will thrive almost anywhere, there may be localities too poor to yield better fuel, on which this may be profitably planted. It is propagated by seed.



THE WHITE BIRCH.—*Engraved for the American Agriculturist.*

The Grape-Seed Insect.

Mr. H. D. Stewart, Perry Co., Pa., sends us a quantity of grape seeds, in each one of which is a small grub. This is not a new pest of the vineyard, having been discovered in 1868, but it has seldom prevailed to any serious extent. The infested berries usually shrivel in midsummer, after which the swollen seeds are found to contain plump white grubs with brown jaws. The grubs change to chrysalids in the following spring, and the mature fly escapes through a hole in the seed in early summer. These flies are black, and less than a quarter of an inch long. The females deposit their eggs upon the skin of the grape, and the young grubs work their way into the immature seeds soon after hatching. The best remedy yet suggested is to gather and burn the shrivelled fruit.

Early Spring Work.

JOHN M. STAHL.

"The early bird catches the worm;" as a general rule the early farmer makes the money. The one who has his oats first sown, his potatoes first planted, his ground first ready for the corn, his garden vegetables first in properly prepared ground; in short, who is the earliest in his work in its season, is the farmer who raises the largest crops and makes the most money; and with good reason. He drives his work instead of being driven by it, and has time for doing it well. His products being early sell for a better price. Early vegetables, early poultry, early lambs and calves, always command the highest figures. His corn, wheat, oats, potatoes, vegetables, etc., have the entire season for growing and maturing. But this early work requires earlier planning and preparation. At the far South, garden and field operations begin this month. Further North a good deal may be done even now. Let us enumerate, by way of reminder, some of the many things to be done or thought about before the time comes for action:

Corn stubble may be speedily broken down while yet frozen, by dragging over the field a long pole with a horse hitched to each end. The manure may be hauled to the field over the ground while yet frozen, and no ruts will be made by the wagon wheels. Plows and harrows may be repaired at home, and taken to the shop to be sharpened. Harness may be cleaned and oiled; fields laid off into "lands" for plowing; washouts be filled; seed corn shelled and seed oats well cleaned in the barn while it is yet cold and stormy outside. Drags, rollers, cultivators and seeders may be looked after and got ready for use. Such little things as whiffle-trees, chains, oil cans and water jugs should be gathered and stored where they can be reached at once. Spades, shovels, hoes, forks, etc., should be brightened, sharpened, and repaired, if in need of it. The mow may be filled from the hay stacks. The summer's supply of wood should, by all means, be cut and stored under cover. Rails, posts, or boards for repairing fences may be hauled to their places, and the wood lot cleared up. The farm should be well supplied with gates, and now is a good time to make and hang them, or have them ready for hanging. Set the ash leach; smoke and store away the year's supply of pork; strengthen water fences and gates for the spring freshets. Pile and burn rubbish, and haul out the chip dirt. Repair the fences blown down by winds, or torn down by stock. Look after the well and pump, and clean the cistern ready for the spring rains. Remove garbage thoroughly from the cellar. Clean out the poultry-house and have new nests made. Have the yard tidied up. Pry or blow out stumps and clear off new ground ready for the plow; take out or bury large stones.

Clean off the garden; take the dead canes out of currants, gooseberries, raspberries and blackberries; trim the grape vines; cart manure on the ground; start early vegetables in hot-beds; select seeds, and buy any needed; select potatoes for planting; and look after the asparagus and strawberry beds. Grub out orchard trees that the winter has killed; prune, and pile and burn limbs removed; cover with wax any wounds made by rabbits or mice. Scrub down the orchard trees with suds from the week's washing. Scale the dead bark off of old trees. Manure the soil. Look after the bees. Trim osage orange hedges and burn the brush. See that you have good cocks in the poultry yard. Provide for coming calves and pigs.

In short, do spring work at the earliest possible moment, and endeavor to do it a little earlier than ever before. There will be plenty of work left when spring does come. The more time, the more thorough preparation of the soil for crops; and the more thorough its preparation the better the crops. Much time may be saved by having things ready. One should not have to hunt whiffle-trees, repair harness and implements, have plows sharpened, or go to borrow, in the spring—have everything ready.

California Dairy Statistics.

In connection with our special correspondent's account of Dairying in California (page 48), we have compiled a table of census statistics of the State and its leading dairy counties. In this we have introduced for comparison some figures of New York State (by far the largest dairy State), and of four of its leading butter and cheese counties. In cheese production California ranks second in the Union, but falls to sixteenth in its yield of butter, and to twenty-second in its number of milch cows. This table is as follows:

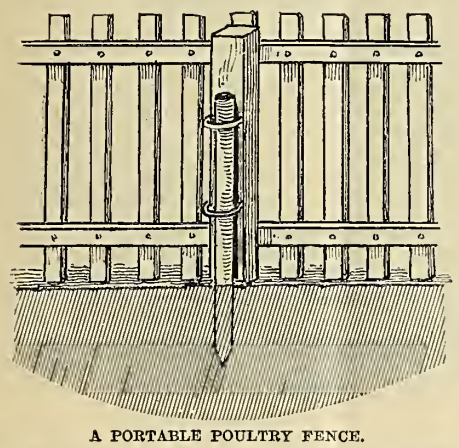
	Milch cows. Numb.	*Butter. Pounds.*	*Cheese. Pounds.*	*Butter & cheese, lbs.*	*lbs. per cow.*
United States..	12,443,120	777,250,287	27,272,489	804,522,776	65
New York.....	1,437,855	111,922,423	8,362,590	120,285,013	84
Delaware Co...	57,673	7,732,028	25,898	7,757,926	135
Otsego " ...	48,827	4,578,784	404,626	4,983,410	102
Herkimer " ...	48,237	1,402,922	2,862,334	4,265,256	88
Steuben " ...	37,254	3,886,985	138,830	4,025,815	108
California ...	210,078	14,084,405	2,566,618	16,651,023	79
Marin Co...	24,698	2,567,888	65,100	2,573,488	104
Sonoma " ...	18,336	1,895,523	217,860	2,113,383	115
S. L. Obis. " ...	13,177	1,148,028	198,850	1,346,878	102
Humboldt " ...	10,489	993,258	14,137	1,007,395	96
S. Clara " ...	9,158	450,370	738,450	1,188,820	130
Sacram. " ...	7,434	539,339	182,070	721,409	97
S. Mateo " ...	6,691	283,031	288,215	571,246	85
Monterey " ...	5,690	557,516	119,000	676,516	119
S. Cruz " ...	3,445	350,060	102,500	452,560	131
S. Benito " ...	2,712	120,410	173,320	293,730	108
Del Norte " ...	2,189	248,950	57,300	306,250	137

It will be noted that as in New York, Delaware and Herkimer counties for example, one see-

tion produces butter chiefly, and another cheese, so in California, Marin county makes butter mainly, while Santa Clara supplies nearly one-third of all the cheese that gives the State its second rank in this line.—Delaware Co., N. Y., and Del Norte Co., Cal., both butter counties, give the largest aggregate yield per cow; but Herkimer Co., N. Y., a cheese county, gives the lowest yield per cow, and Humboldt Co., Cal., a butter county, is next to the lowest.—The table condensed from the Census affords other interesting comparisons.

Portable Poultry Fence.

Mr. "D. R. C.," of Abington, Mass., sends us a sketch and writes: "It is often very convenient when poultry are inclosed during the growing season, to have a fence for the hen-yard which can be



A PORTABLE POULTRY FENCE.

readily moved from place to place. I have found the contrivance herewith, practical and satisfactory. Cut the posts the same length as the pickets, and to the inner side of each attach two strong iron hoops bent into a semi-circle, one near the bottom, and the other half way up. Through these hoops drive stakes fitted to fill them closely, with sharpened points for easily entering the ground. When removing the fence the posts can be slipped off.

Physical Comfort from Old Newspapers.

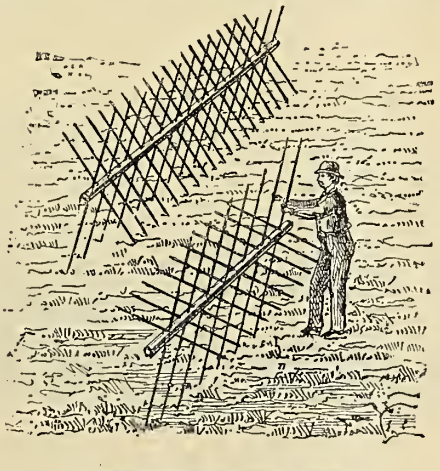
To be able to get for a few cents a neatly printed daily journal, having twenty-three feet of surface, on which, as a panorama, is spread out all the leading occurrences for four and twenty hours just passed, is certainly a great comfort.—But that is not the comfort we now have uppermost in mind; it is rather one that may be enjoyed all over the land in these chilly days, and especially in the abodes of the poor, in the dwellings out on the bleak prairies, on the stormy hill elevations, and in the frozen regions of the North. Let us illustrate by experience: Providence, or chance, placed the writer in a farm dwelling almost as old as our Government, on very high land, but so situated between the hills, that the mid-December western winds, gathered as in a funnel, swept through with terrific force, carrying off the heat from the house faster than a great box stove full of blazing hickory and black birch could produce it. But the worst thing was, that the aged floor, albeit of good matched pine plank, had shrunk until some air could and did sift in between the tongue-and-grooves; and, driven as it was by hurricane force, the thick home-made rag-carpet was often lifted high up, and it too sifted through the freezing air. In fact, the only way to keep warm was to put on extra thick clothing, and shielding the feet in arctics, keep them perched upon a supplementary chair. With more such days in prospect, we had about decided to fly at once to some more modern house, with hot-air furnaces and other conveniences, when, on opening a closet, we found a large bundle of various daily papers. No quicker thought of than executed, the carpet was raised, and those papers spread out ten to fifteen thicknesses all over the floor. They were laid down promiscuously so as to secure thorough "breaking of joints." Additional listing was put on the doors, and another two extra angles and joints were added to the stove-pipe, giving it a complete curve up and down and securing some more heating surface.

Result: We have now (Dec. 24,) just passed through the severest cold ever experienced when a thermometer was present to record it. Yesterday morning it was far below zero, and did not get above all day, while the winds were none of the quietest. But with one-third of the fuel used in the previous cold snap, our room is and has been as warm and comfortable as any furnace-heated city mansion. The extra pipe helped a little, but those newspapers did the thing! Why, even the most brittle "wood-pulp" newspapers are more impervious to wind currents than the thickest carpet. Three or four layers of them with the air spaces between, are as good non-conductors as a plastered wall with its minute air cracks, or as an ordinary bed spread; and one or two placed between the blankets are equal to an extra quilt, to keep in the warmth of the bodies of the sleepers.

Tacked on the beams over a cellar, a few thicknesses of newspapers are equal to an extra floor or ceiling placed there, in keeping the rooms above warm. Nailed up so that they will not be wet by rain, around the horse and cattle stalls, or the chicken abodes, or any buildings occupied by animals, human or otherwise, newspapers are warmer than the outer board siding, rough or planed; and they can be renewed at pleasure at no cost, and be removed in spring for additional ventilation. In short, the judicious use of newspapers may be made to save half the fuel in well-to-do homes, and supply its lack to the poverty stricken. We call the special attention of benevolent societies to this fact. Farmers may by using newspapers save much feed otherwise used up by the animals in keeping warm. Eggs will be far more abundant if the hens are kept warm, by lining their winter quarters with newspapers, and stock poultry go through well on half the feed otherwise required.

A Revolving Sheep Hurdle.

An easily moved feeding hurdle is shown in the accompanying engraving. It consists of a stout pole or scantling of any convenient length, bored with two series of holes, alternating in nearly opposite directions, and twelve inches apart. Small poles five or six feet long are so placed in the holes that each adjoining pair makes the form of a letter X. These hurdles are arranged in a row across the field, and the sheep feed through the spaces between the slanting poles. The hurdles



A REVOLVING HURDLE FENCE.

are moved forward by revolving them, as shown in the engraving. By using two rows of these hurdles, sheep may be kept on a narrow strip of land, and given a fresh pasture daily by advancing the lines of hurdles. This method of feeding off a forage crop is one of the most effective and inexpensive for enriching worn-out land, especially if a daily ration of grain or oil-cake is given to the sheep.

Some Possibilities in Western Farming.

PROF. S. R. THOMPSON, NEB. AGRICULTURAL COLLEGE.

Many centuries ago an old Greek writer on farming said: "A farmer should be a seller and not a buyer." This maxim is as good to-day as it ever was. It is still the business of a farmer to produce for sale. Some things he must buy, but as a rule he will be the worse for it if he departs from his legitimate business to trench on that of the dealer by buying to sell again. In the regions west of the Missouri River farmers have to contend with two special difficulties: distance from market and want of capital. In any new country the first products are usually bulky, which aggravates the difficulties of distance from market. Not long ago it took the price of two bushels of corn to pay for transporting one; that is corn sold for twenty cents, and it cost forty cents to send a bushel to New York. The first remedy is to condense products before shipping. A bushel or fifty-six pounds of corn may be condensed into ten pounds of pork, which can be freighted anywhere for less than half it would cost to ship the corn. Grain may be condensed into butter and cheese by feeding it to cows. This condensation leads to other incidental but important advantages, notably a diversifying of products.

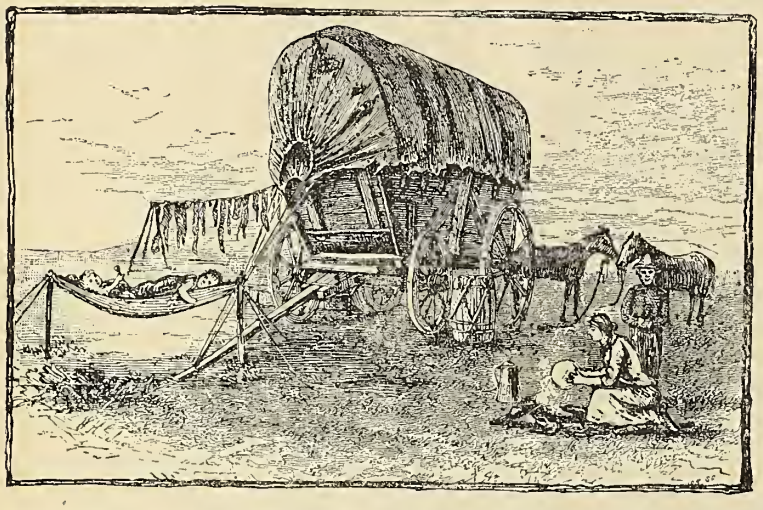
The most marked improvement in Western farming during the past decade is in this direction. But there is still room for more. Many thousand hogs are shipped alive to Chicago every year, and their cured meat is reshipped to the same place to be retailed. This double expense of freightage over many hundred miles is a waste of labor that ought to be stopped, and would be but for the scarcity of capital incident to new countries. Certainly every farmer should cure his own pork. There is absolutely no good reason why we should import canned corn from Maine, tomatoes from Maryland, not to mention pickles, beans, peas, cheese, crackers, etc. These can all be grown, and prepared here as cheaply as anywhere. It is safe to say that three bushels of sweet corn can be grown in Nebraska for what it costs to grow one in Maine, and perhaps the same may be said of tomatoes. Some of the idle Eastern capital might be invested here in canning factories and other ways with the certainty of a rich return.

So too in the line of sweets. For many years sorghum has been grown in a small way, and syrup made from it on farms. A considerable amount of profit has resulted: but the great drawback has been that the article made has often been poor, never uniform, and has found no regular market. With the coming in of steam sorghum works, where the amount of capital invested justifies the employment of experts, a different state of things has been brought about. A small steam factory in this neighborhood made some thirteen thousand gallons of syrup last season, all of which was taken by the wholesale grocers almost as soon as made. The return to the farmers raising the cane varied from twelve to thirty-three dollars per acre. The common yield was about twenty dollars per acre for the unstripped cane sold.—The cane crop seems peculiarly fitted for this soil and climate. It can be planted after corn is in the ground, and harvested before husking begins. In dry seasons when corn does poorly, sorghum usually makes an excellent crop. It requires a little more hard labor than corn, but returns more. Another crop for diversifying our agriculture is broom corn. It grows well, and wherever the necessary help for harvesting it can be procured at a moderate price the return is most satisfactory. Wherever it has been tried, any failure to give satisfaction has been due either to lack of knowledge by the grower as to the proper method of handling and disposing of it, or to the lack of the requisite extra help at harvest.

There are excellent openings throughout the West for the employment of capital in factories for making sorghum sugar and syrup, as there are for canning corn, tomatoes, beans, etc. Such establishments are needed by the agricultural community, and if judiciously managed will pay the investor well, and prove a benefit to the farm.

On the Road.

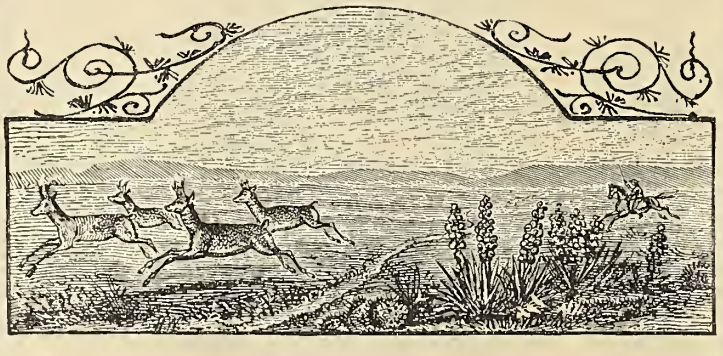
Coming Back.—We came upon them at the close of a September day, five miles from Columbus, Neb., their "schooner" anchored on the prairie sea for the night and the wanderers preparing their evening meal. The little Arabs tossed about in an extemporized hammock while father fetched the water from the stream and mother boiled the potatoes and broiled the grouse shot two hours before. Close by the horses were coralled. Old Towser, the faithful watch dog during all these long journeyings—stretched under the wagon waiting his finish at the victuals, which, however, a soaring hawk apparently believed would fall to his lot. It was a most picturesque scene, as the setting sun cast a flood of light upon all around, and then disappeared beneath the



billowy grass, just as one sees the bright orb drop below the ocean waves.—They had been travelling all day, poor things. Man and beast were weary and worn. They had been to the far West, and were now wending their way slowly back home east of the Mississippi, heartsick and disappointed with days and weeks of travel before them. We did not question them too closely, but it was plain to observe that they belonged to that large class who push for the far West without sufficient forethought and preparation. Very many reach their destination in safety, construct a sod house, break a few acres, and then have not means to tide them over until they can harvest a crop. Others lose their crops and are unable to winter. Still others become discouraged owing to sickness and other causes, and are bound to get back East again, no matter at what sacrifice. If they have not funds to carry them back by rail they drive back, consuming weeks and even months in making the return trip. So it transpires that at certain seasons and in certain localities in the Western States and Territories, claims and breakings can be bought from discouraged owners at a fraction of their value. Frequently the disheartened settler, after he has built his house, made his first payment, and broken thirty acres or more, will "let the whole business slide" for enough to carry him and his family out of the country. During the grasshopper period, the prairie roads of Kansas and Nebraska were at times fairly alive with returning settlers, whose crops had been devoured, and whose claims were being bought at a song by cormorant speculators or old and new comers who had more faith in the future of the country. In 1875-6 and 7, the railroads experienced great difficulty in selling their lands in some portions of Kansas and Nebraska, the abandoned claims were so numerous and sold at such low figures. Often the deserters after remaining East for a year or more, will return again to find the claims which they gave up now held by thrifty occupants and very valuable. So they have to push on still further away from the railroads, where lands are cheaper, and begin all over again. Moral—Don't be tempted by the alluring advertisements of some railroad to start for the new West, before you are fully equipped. And when you do start, go expecting to encounter hardships, and determined to stick it out, though grasshoppers, or short crops, or rainy seasons, or blasting winters are among your earlier experiences. Then time will bring you out all right.

Rapid Transformation Scenes in the Far West.—In previous numbers we have spoken of the wonderful growth of villages and towns in Dakota and elsewhere. For example how Huron, which two years since had no existence, is now a flourishing place, with any number of hotels, churches, etc., etc., and how Blunt, which at the beginning of 1883 was not located, now has a thriving population, and an opera house capable of accommodating six or seven hundred people. A letter just received from Wolsey, a few miles west of Huron, says:—"Since you passed through Huron (last September) the Chicago, Milwaukee & St. Paul R. R., has passed through Wolsey, and the latter place, at the time of your visit having but three or four buildings, has now two hotels, two depots, three lumber yards, quite a number of stores, two saloons, a school-house, and a prospective five thousand dollar Presbyterian church. Woonsocket, without existence at the time you passed here, located midway between Mitchell and Wolsey, on the Milwaukee Road, has had a more phenomenal growth."—While towns and villages spring up with wonderful rapidity in the far West they often disappear with equal rapidity. At various points along the Union Pacific and other roads in Wyoming and elsewhere, the traveler is pointed out the ruins, at times almost indistinguishable, of what were once, when the railroads were building, villages of one, two, three, five and as high as seven thousand inhabitants; now all vestiges of many of these have disappeared. One evening a party of us were sitting in the superintendent's office at Oneida, Utah, the then terminus of the Utah Northern Road, when we were informed that upon the following day the entire village was to be moved to the termination of another section of the Road, which had just been completed. We did not remain to take part in the transfer, but were subsequently informed that the entire village was bodily transferred in twenty-four hours' time, on wagons and upon cars.

My First Antelope.—We scurried over the desert plains south of Laramie, Wyoming, skirted Sheep Mountain, entered North Park, and after a fifty-five mile drive, rested at far-famed Pinkham's for the night.



All day long we kept up a fusillade at antelope in the distance, but without effect. At daybreak I swung my Sharpe's carbine over my shoulder, mounted my horse, and started for a group of antelope a mile or more away. When within a thousand yards I dismounted, and for three hundred yards crawled cautiously through the long grass. They appeared to be a buck and two does. Reclining at full length, and, taking long and deliberate aim at the larger of the three, I was highly elated to see the supposed buck spring in the air and fall to the ground. Returning, and remounting my horse, I rode rapidly towards the wounded animal, elated at the prize I should be able to show my comrades at Pinkham's, when they rose for breakfast. Judge of my chagrin and remorse when, upon drawing near to the dying animal, I discovered that I had shot a doe. Instead of scampering rapidly away, as they naturally would have done, the fawns remained close to their mother in her death struggles. With their beautiful gazelle eyes they cast such piteous, reproving looks at me, as one could never forget; it was a scene to move a heart of stone. For days afterwards on driving from point to point in North Park, we encountered large droves of these antelopes. Frequently they remained, just like so many calves in the barn-yard, until we had ridden fairly on to them. I could never persuade myself to shoot another of these beautiful animals except as needed for food. Sportsmen who delight in shooting the beautiful creatures one after another, are nothing less than inhuman butchers.



Wonderful Physical Formations.—The rugged foot-hills, the buttes and configurated rocks, in the far West, are a source of not a little curiosity to the sight-seer who looks upon them for the first time. Moving westward from Bismarck to the Yellowstone, one sees these physical formations for miles and miles away, standing boldly out on the prairies like so many lonely sentinels. In Central and Southern Colorado they are perhaps more frequent than elsewhere. Riding down on the railroad train from Denver to Colorado Springs and Manitou, the traveler sees these sandstone and other formations of every shape and variety. The engraving represents one which every visitor to this region of the State does not fail to visit. It is located not far from Manitou, and like many other similar configurations around, it indicates what a wonderful upheavel our Continent must have been subject to, not so many centuries away, either. The Garden of the Gods, near Manitou, comprises a most wonderful collection of these geological formations. We spent a day very pleasantly in studying them, and at some future time shall describe them at length.

Rail Road Building.—As compared to population, rail road building is now far greater in the far West than in the Middle or Eastern States. It will not be long before Kansas, Nebraska, and Dakota will be covered with a network of railroads, fully as extensive as prevails any where in the older States. The fares on these Western roads, which have generally been too high, are now coming down. Of course the new roads have no land grants which have proved such signal aids to Western railroad pushing in the past. It is not impossible that some of the grants now held may be repealed by Congress during the coming winter.

Farming versus Mining.—Very many of the earlier adventurers who came to Montana and Colorado, expecting to make their fortunes in mining operations, have now turned their attention to farming. Cattle and sheep raising, and farming, where too much irrigation is not required, are more certain of profitable returns in the long run than any mere mining operation. Western Colorado promises to soon show very handsome farms.

One Hundred and Twenty Thousand Miles!—Next to Agriculture and closely connected with it, by far the greatest interest of our country is the railroad system, an interest nearly unknown a short fifty years ago. Half of it is the growth of about a dozen years past as the mileage at the beginning of 1872 was just half of that at the end of 1883! The figures, brought up to Christmas, show the construction of 6,600 miles during the past year, making a total length in the United States of 119,421 miles, and the 79 miles lacking for a round 120,000 will be finished before this can reach the eye of the reader. Last year's new construction exceeded the entire length in existence here only thirty-five years ago. Taking the last census figures for agriculture, and reckoning the past year's building of railroads at the previous average cost per mile, we have:

Value of Farms in United States, including buildings, fences, etc., (Census 1880)	$10,197,096,776
Value of all Farm Animals	1,509,464,609
Farm Implements and Machinery	406,520 055
Total invested in Agriculture	$12,104,081,440
Total invested in Railroads in U.S. (Jan 1, '84).	$7,270,000,000

That is, $600 have been used in building railroads for every $1,000 value of farms, fixtures and live stock reported in last census—and the chief business of the railroads is carrying farm products. Of the 770 million dollars earned by railroads for 1882, the latest reports made up, 202 millions came from passengers, 506 millions direct from freight carried, and of the remaining 62 millions from miscellaneous sources, a large share was for freight carried by express companies.—Query—Would the farms of the country have one-half or even one-third their present cash value, if there were no railroads?—The following table shows at a glance the annual progress:

RAILROADS IN OPERATION IN THE UNITED STATES.

Year.	Miles.	Year.	Miles.	Year.	Miles.
1830	23	1848	5,996	1866	36,801
1831	95	1849	7,365	1867	39,250
1832	229	1850	9,021	1868	42,229
1833	380	1851	10,982	1869	46,844
1834	633	1852	12,908	1870	52,914
1835	1,098	1853	15,360	1871	60,283
1836	1,273	1854	16,720	1872	66,171
1837	1,497	1855	18,374	1873	70,278
1838	1,913	1856	22,013	1874	72,383
1839	2,302	1857	24,503	1875	74,096
1840	2,818	1858	26,968	1876	76,808
1841	3,535	1859	28,789	1877	79,089
1842	4,026	1860	30,635	1878	81,776
1843	4,185	1861	31,286	1879	86,497
1844	4,377	1862	32,120	1880	91,444
1845	4,633	1863	33,170	1881	101,733
1846	4,930	1864	33,908	1882	113,339
1847	5,598	1865	35,085	1883	119,921

Note that the mileage doubled between 1850 and 1855, and again between 1866 and 1874, and between 1871 and 1883; that with two exceptions less than 3,000 miles were built in a year prior to 1869; that more miles were built in 1882 than existed in 1852.

Other Striking Figures.—During the year 1882, the latest period for which reports have been received, the railroads carried 7½ times as many passengers (375,351,812), as the entire census population of the country! Of these, over 86 millions rode on the elevated railroads in N. Y. City. Leaving these out, the steam railroads of the Middle States carried 13 times the population of these States (N. Y., N. J., Pa., Md., Del. and W. Va). More striking still are the freight statistics. During the year the railroads carried 360,490,375 tons, or 720,980,750,000 pounds—equal to an average of 14,414 lbs., or over 7 tons for each of fifty million men, women and children! This was all carried an average of 108¾ miles—equal to carrying a ton nearly forty billions of miles (39,302,209,249 miles), or nearly sixteen hundred thousand times around the world, over two hundred times to the sun and back! And the average charge for the whole country was only 1 cent and 2 mills per mile, for carrying a ton of freight—in the Middle States only one cent per ton per mile. Imagine a team hauling a ton of grain 25 miles for 25 cents, including driver, team, wagon, loading and unloading, and boarding themselves!

Interesting and Remarkable Comparisons.—Hitch up all the teams in the United States and Territories. The census gives us nearly half a million (496,920) yokes of working oxen, and over ten millions (10,357,488) horses, with near two million (1,812,808) mules and asses. The last two, if two-thirds are in working age and condition, would give us over four million spans; or with the oxen about four and a half million (4,553,685) teams. These teams to do the hauling done by the railways, would each have to draw a ton over 8,639 miles! In other words, in order to transport the freight now carried by railroads, every team in the country would have to pull a ton weight about 29 miles a day, during three hundred days a year, and at the average railroad charges, would receive about 34 cents a day, for man, team and wagon, out of this pay board, feed and repairs; the balance for wages, interest and wear! But allowing for return trips, each team going 14¼ miles a day and back, our whole team force would have to be doubled to do the freighting now done by the railroads.

Chat with Readers.

Labor-Saving Devices.—*Mr. W. A. Roberts*, Center Ridge, Kans.—Please accept our thanks for kind words, and the sketch and description of a feed rack, and other aids in farm operations. We are always pleased to hear in like manner from our subscribers in all sections of the country.

The Best Book.—"*G. W. K.*," N. H., asks: "What is the best book for information upon general farm subjects?"—The best work for general reference is, "Allen's New American Farm Book." The author was a practical farmer, and gives just the information that farmers are most likely to need.

Hydraulic Lime.—A correspondent who does not wish his name given, asks; "Will Hydraulic Lime do as a substitute for cement in concrete?"—Hydraulic Lime and Cement are names for the same thing. In England it is called Portland Cement, and on the continent of Europe, Pozzuolana. In this country, that from a particular locality is called Rosedale Cement.

Good Returns.—*I. Coe*, Ill., (who omitted to give his town), writes us that he was induced, by seeing an article in our pages, to make a bed or patch of Water Cresses. He now values his patch as worth at least one thousand dollars. He was selling five dollars worth weekly even in October, which is quite out of season. No wonder that Mr. C. writes: "the *American Agriculturist* just suits me."

Utilizing Slaughter-House Refuse.—*C. Souder*, Atlantic Co., N. J.—This consists of scraps of flesh, entrails, blood and other animal offal. It may be decomposed by covering it with muck, or even with common earth. The least troublesome method of disposing of the refuse, would be to place it in the manure heap, distributing it to prevent violent heating. It will add to the value of the manure.

Heating a Poultry House.—"*C. E. M.*," Fall River, Mass., asks the most economical method of warming a poultry house. The best method of warming a plant house, will no doubt be best for poultry. This is by circulating hot-water in iron pipes. Portable heaters are now made on the principle of the base-burner stove, which are effective, and require no more care than ordinary stoves.

Use of Potash Ley.—"*G. W. K.*," Merrimae Co., N. H., asks if there is any fertilizing value in potash ley, in which corn has been hulled. The corn can remove very little if any potash from the ley, which is undoubtedly of value. The best way to use it, and other fertilizing materials of which one has but a small quantity, is to scatter it upon the manure heap. Whatever there is of value will be saved, and it will add to the richness of the manure.

Sweet Potato Plants.—*W. S. Spencer*, Norfolk, Neb. Persons who desire only a few sweet potato plants, and live near large cities, can usually buy them cheaper than to raise them. The young plants will bear transportation well if properly packed. Gardeners who wish these plants in larger quantities, should grow them at home. There is a small book with full directions for raising sweet potatoes, published by the Orange Judd Co., price fifty cts., post-paid.

An Onion Question.—"*A. C. I.*"—With reference to an article in December last, where we speak of "Potato Onions, or Multipliers," asks whether the names do not belong to two distinct kinds of onions. We first knew the onion many years ago, in a Western State, as "English Multiplier," and "Multiplier." We first heard the name "Potato" applied to the same onion, when we came East. The onion is more or less flat, or somewhat long, according to the shape of those selected for planting.

Fifty Acres of Pasture.—"*G. H. P.*," Teagus, Mo., is about to lay down fifty acres in pasture, but he wants hay for next winter. He has been advised to sow rye with the grass-seed, and by cutting early make hay of it. He asks our opinion. Rye makes such large clumps of roots, that we should prefer to sow oats with the grass. If cut early, oats will make a more nutritious hay than rye. If any of our readers have sown rye under such circumstances, will they give us their experience?

Mulching Tomato Vines.—*E. D. Moore*, East Saginaw, Mich., makes frames, or bottomless boxes, seven inches square, and four and a half inches high, of half-inch stuff well nailed together. After the plants are set out, one of the frames is placed over each, having the plant in the center. The frame is then filled to within half an inch of the top, with fine dawdust. The sawdust acts as a mulch to prevent the evaporation of moisture from the soil. If in a long drouth it becomes necessary to water the plants, the water can be applied through the sawdust, and the baking of the surface of the soil avoided.

Netherlands International Exhibition.—Holsteins.—"*J. H.*," Rye, N. Y.—An exhibition will be held at Amsterdam this year, from August 25th to September 6th. The programme offers premiums for exhibits "from all other countries," besides those for home products. Those in this country who claim that there is a breed of cattle known as "Holstein," must be at loss to explain why, in a large agricultural exhibition, held in the alleged country of the "Holsteins," no notice is taken of that breed in the prize schedules. The liberal premiums offered for agricultural machinery and implements should induce our manufacturers to be represented at this exhibition.

How to Use Hen Manure?—This question comes from several subscribers. The condition of the manure differs with the management of the poultry house. If the house is swept daily, and the space under the roosts is covered with earth to receive the droppings, no preparation will be needed. If, as usual, the manure is allowed to accumulate, and only occasionally removed, it comes out in solid masses or lumps. The lumps must be broken up by a pounder, and the manure sifted and mixed with dry peat, or dry woods-earth, or in the absence of these, dry soil may be used. Mixed one part to ten of muck, etc., it will be useful upon farm and garden crops.

Cinquefoil or Five-Finger as a Weed.—"*E.*," Belknap, Pa., sends a vine and asks how to get rid of it. The plant is evidently Cinquefoil (*Potentilla Canadensis*), also called "Five-finger." We never before heard of its being aggressive as a weed, though it sometimes over-runs fields, the soil of which is not fit for any other purpose. There is no special application that will kill one plant and not another, and weeds must be crowded out by occupying the soil with other plants. Cinquefoil, so far as we have seen it, grows upon land too poor to be worth cultivating, unless enriched. A crop of Buckwheat would no doubt smother the plant, and this may be turned under to enrich the soil.

Guenon's Escutcheon.—"*A. T. V.*," Wheaton, Ill.—It would not be possible to present the "Escutcheon theory" in full, if we gave up the whole paper to it, and an abstract, to be of any use, would require more room than can properly be given to one topic. One to make use of Guenon's rules for judging cows, needs to have the diagrams before him, and these are given, with the descriptions, in a book which is a much more convenient form than the paper would be. As to the value of this method of judging the milking capacity of cows, we find that the most intelligent breeders, while they do not depend upon it altogether, find it of too much value to be ignored.

Russian Apples.—*L. Smith*, Bruley Co., Dakota, asks: "Are the Russian apples any better than our own? The nurserymen praise them extravagantly, and ask about twice as much for them as for Ben. Davis, Winesap, and other well known kinds. Is there any humbug about Russian apples?"—The best of the Russian varieties are not equal in quality to the best of our own, but they are much hardier, and will give fruit where the others fail. There is no reason for planting them where other apples can be relied upon, but where it is a question of Russian apples or none, they are valuable. The number of tested Russian varieties is as yet small, and these have not yet been propagated so largely as others, hence the higher price.

How Many Fowls.—"*A Reader*," in New York City, asks how many fowls can be kept in a house ten by fifteen feet, with a yard ten by eighty-five feet. Also, how many nests should such a house have. From twenty-four of the large fowls, such as Brahmas, to thirty-six of the small breeds, such as Leghorns, may be kept. The number that can be safely kept in one inclosure, depends upon the care given to cleanliness. If the floor is daily covered with dry earth or coal ashes, and daily cleaned, the numbers here given may be exceeded. The house must be perfectly dry, and provided with means for ample ventilation. As to the number of nests, probably one-third as many as there are hens will be sufficient. We would suggest that a portion of the yard be occupied by a shed or covered run, in which the birds can take exercise and dust themselves in stormy weather.

Sheep Raising.—*Mr. C. Grant*, Baltimore, Md.—It is not possible to estimate with accuracy, the increase in the number of a flock of sheep for a period of five or ten years. In general the twins will make up the losses of lambs by death, so that the increase will be equal to the number of mothers each year in the flock. The profits upon one thousand head of sheep depend upon so many things, that they cannot be closely calculated. Much depends upon the healthfulness, age, size, etc., of the sheep, and the abundance of dogs; the cost of feed both winter and summer; and the care given to the flock. A hundred early lambs, well-fattened for early spring market, will sometimes bring a greater profit than ten times as many late lambs raised for wool. But only the best favored can succeed with early lambs, and they need to be pure, or half-blood mutton-sheep. The market price of wool, and the cost of producing it, are the leading factors in the problem of profitable sheep raising in the far West.

The Peach-Tree Borer.—*Mr. Geo. M. Caywood*, Ewing, Ky.—The Borer is a wide-spread and destructive pest in the peach orchard. The mature insect is a moth, which appears from the middle of July to the last of August. The female deposits her eggs singly on the bark of the tree, near the surface of the soil. The young borers work downward into the roots, forming small winding channels. A full-grown borer is half an inch long, and is soft, pale yellow, and with strong black jaws. The borers make leathery cocoons out of castings or "sawdust," gum and silk, in which they remain in the inactive or pupa state, near the surface of the soil. If the earth is loose, the cocoons may be an inch or more below the surface. There are several remedies, and more preventive measures for this pest. The presence of the borer is known by the dust and exudation of gum, and when these are found, the burrow should be probed with a slip of whalebone, or a short wire, and the borer killed. Hot water is sometimes used, the earth around the base of the tree having been removed. The knife and probe used in late autumn or early spring, are the most effective means of reaching and killing the borer. Care should be taken not to cut the tree more than necessary. Among preventive measures, is the banking of the tree with earth for a foot or so. This mound with the earth firmly pressed around the tree, may be permanent, or better still, thrown up in spring, and leveled in autumn, after the season of egg-laying is passed. Ashes and cinders are sometimes heaped around the trees instead of mounds of earth. A covering of stout paper, a plastering of clay, or a wash of tobacco water may help to keep the egg-laying moth away from the trunk of the tree during the summer.



OUR BASKET.

Road Making.—Mr. J. W. Sanborn, Centre Point, Iowa, writes us that the almost universal error in road making in low land consists in raising the roadbed with earth taken from the adjoining sides, thus making a reservoir for water to keep the road wet. The earth should be hauled from higher ground.

Egg Refrigerator.—Mr. H. J. Meixell, Ephrata, Pa.—The cost of a cold house, holding a thousand to fifteen hundred barrels of eggs, will vary greatly, according to the quality of material and the manner of construction. The cold rooms in New York and other cities, are mostly arranged inside of other buildings, and the cost can not be well estimated.

Hedge Plants.—The thorn, or quick-set hedge, so much used in England, is not suited to this country. Our long hot summers are unfavorable, and it drops its foliage early; besides, it is attacked by numerous insects. The best hedge plant is the Osage Orange, for all localities in which it will flourish, for other and colder places, the Three-thorned Acacia and Buckthorn.

The Ohio Agricultural Experiment Station.—The director, W. R. Lazenby, evidently comes to his work with enthusiasm, and, in the phrase of the day, "means business." He has taken up Injurious Insects and Weeds, subjects of the highest importance to every farmer. With a view to acquire full information, circulars are sent out, asking farmers to give the names of the principal insects and weeds that interfere with the cultivation of the leading crops. We hope that our many friends in Ohio will promptly respond to these questions, and thus lend a helping hand to the proposed useful work. Those Ohio farmers who have not received the circulars referred to, can procure them by applying to Director Lazenby, at Columbus, O.

Light Brahma Fowls.—J. J. Read, Iowa, asks us if by "Light Brahmas, we mean the buff, or is it the large silver-gray Brahma, or Cochin?"—Our correspondent has evidently mixed the breeds. The Cochins all have a flat or erect comb, while that of the Brahmas is a very low "pea-comb." In the dark Brahma, black and gray predominate, while the light Brahma is nearly white, handsomely varied with a black tail; the neck hackles have a black stripe down the middle of each feather, and some other black markings. The breeder of either claims that his is the best variety, and there is probably little difference between them. You will find that several dealers advertise Light Brahma eggs in our columns at the proper season. Believing that all our advertisers will do as they propose, we can not recommend one in preference to the others.

Pine Trees and Lightning.—"W. E. K.," Ionia Co., Mich., writes us: In the September number of the *American Agriculturist*, you speak of the notion prevalent in some localities that the pine tree is lightning-proof. This superstition can hardly exist where both pine trees and lightning are as common as in Michigan. A pine tree one hundred feet high is too plain a target to be missed by lightning, and scarred veterans are frequently to be met with in all pine forests. Isolated trees seem to be more severely injured than those in a forest, for obvious reasons. A large pine, thirty inches in diameter, and eighty feet high, standing in a door-yard near here, was struck by lightning, and shattered into fragments. The largest splinter left would hardly do for a fence rail. A broken pine a few feet from my own residence, is a witness that it is not lightning proof, and also disproves the old saying that, "lightning never strikes twice in the same place." To my knowledge it has been struck four times by lightning. Its hight has been reduced from one hundred to fifty feet by the repeated strokes.—[Yes, and we this moment see on a hill before the window where we write, a lone pine a foot or so in diameter, perhaps fifty feet high, of which nearly half of the trunk has been struck off by lightning, and the near residents say that, "that tree gets a lightning whack almost every year"; and the wonder is that it stands it so long.—ED.]

About Mullein.—J. W. M. Appleton, Salt Sulphur Springs, West Va., writes us that in clearing bushy land he finds that mullein comes up so thickly that he fears it will choke out the grass, and asks how to eradicate it. The manner of growth of a weed often suggests the method of warfare against it. The mullein is a biennial. The first year it forms a tuft of broad leaves which lie close to the ground, and in this state it passes the winter. The next spring it throws up a tall stem which flowers, and in autumn the plant dies. There will be no more trouble from that plant, but before it "expires by its own limitation," it has ripened and dropped its multitudes of seeds; the ground for several feet around is thickly stocked with them, and they will continue to produce fresh crops for years. It is evident that to keep the plant from continuing, the flower-stems should be cut off before the seeds are ripe. As the seeds are not provided with wings or other appendages by which they may be scattered, if the stems are persistently cut off, the plant will disappear in a few years. But the ground in the present case is well-seeded to mullein. Earlier in the season it should have been plowed, sown with rye and seeded to grass. It may be well to try the same thing next season with oats. By plowing under the mullein plants, the grain will cover the ground before a new crop of them can get established. If oats are not desirable, try cow-peas or buckwheat as a cleansing crop, and sow grass next fall.

Sensation in Hookertown.

Two Sides to the Question.

MR. EDITOR.—As you wanted me to keep you posted on the news in these parts, I send you a few notes on the last sensation in our town. We have no newspaper printed here now, but there is about as much news circulating as if we had a dozen, and it is just about as important. Tongues were made before types, and need no setting up. You see, last summer Polly Frink came over to our house one morning, looking as glum as could be, and said she, "Mrs. Bunker, what do you think happened over to our house last night?"—"I can't tell," said Sally; "maybe a weasel was around."

"No, it weru't," said Polly, "but somethin' 'nuff sight wus, in the misehief he duz. A skunk got into my chicken coop and killed a hull brood of chickens jest come off. It made me heart-sick when I went out to feed 'em this mornin'. Ye see, old Bose tackled the skunk arter he had killed the chickens, but he got the wust of it, and his eyes are all bunged up this morning, and I'm afraid we must bury the dog to git red of the smell. It's jest orful."

"Skunks are getting to be too plenty for comfort or profit," Sally replied. "Timothy found six hills of Marblehead squashes dug up by the varmints. You see, he made a large border for each hill, and put in more'n half a bushel of manure, and worms bred in the hills, and the skunks, in rooting for grubs, tore up the young plants, and 'twas too late to plant again. I wouldn't have had it done for five dollars, for I was 'lotting on the Marbleheads for Thanksgiving pies."

"Well," said Polly, "I got off as well as some of my neighbors, I guess. Deacon Smith had all his young ducks killed one night last week, and Jotham Sparrowgrass lost twenty turkeys just off the nest. Uncle Jotham says he's about ruined, for he was 'lotting on the turkey money to pay the hired man. Tirzah Twiggs said last night they had lost thirty-five young chickens this season, and she was about discouraged. She guessed Seth Twiggs would have to go without his chicken pie at Thanksgiving, unless something was done to head off the skunks."

This is a fair sample of the talk going on in Hookertown, indoors and out, all the summer and fall. Skunks have kept the field several years, without let or hindrance, except occasionally an old trapper caught one for his hide or for a little oil for medicinal use. Dogs of every breed fight shy of them after a first experience, and bark at a safe distance from the loaded muzzle. They invaded fields and gardens. Their snouts probed corn and potato hills, rooted up young garden plants, robbed hen's nests in exposed situations, devoured young poultry of all sorts, and were a general nuisance by night. Things reached fever heat before town meeting, and Zeke Simons said "somethin' had got to be done, or Hookertown would become a howlin' wilderness agin. Folks and skunks could not live together much longer." This was the prevailing opinion, and in the town meeting warning, one item of business was, "to determine whether the town would put a bounty upon foxes, skunks, and woodchucks." The foxes had been doing a brisk business through the summer, and took a good part of the turkeys and geese that the skunks left when they got big enough to make a square meal for the young fox family. Stealing poultry was not so generally charged to the woodchucks, but they tangled the clover fields badly, and revelled among both field and garden beans and other crops. They dug up the ground in thousands of places, leaving heaps of soil everywhere, and many horses and cattle were badly lamed by stepping into their lookout holes, which had no warning dirt piles. They helped the skunks to hiding places in their safe underground retreats, convenient at every point. They too must vacate Hookertown.

Town-meeting came, and the skunks drew more of a crowd and excited more interest than politics. It turned out an experience meeting, in which farmers told of their losses, amounting to a good many hundred dollars. Zeke Simons said: "As near as I can calculate, it costs Hookertown about five thousand dollars a year to support its fox, skunk, and woodchuck population. We have over five hundred or more farms in town, many of them large and with plenty of range for turkeys. Some have good ponds and brooks for raising water-fowl. The average loss to farmers from these beasts is at least ten dollars, not only in eggs stolen, the sitting hens broken up, and the young and old ones killed, but the fear of these depredations lessens poultry raising. Men are afraid to breed turkeys mainly on this account, and large numbers do not keep them. Many have only a trio or quartet, where they might just as well have a dozen. There is range enough and feed enough on many farms here, chestnuts, acorns, berries, insects, and grass, to keep two hundred young turkeys from June to October, without drawing on the corn-bin. These birds, well fattened, would bring four or five hundred dollars in our village and city markets. Raising poultry would be one of the most profitable branches of farming if the town was cleared of these vermin. He was for a war of extermination, and hoped they would put a bounty on and keep it on until foxes, skunks, and woodchucks were as scarce as wolves and bears."

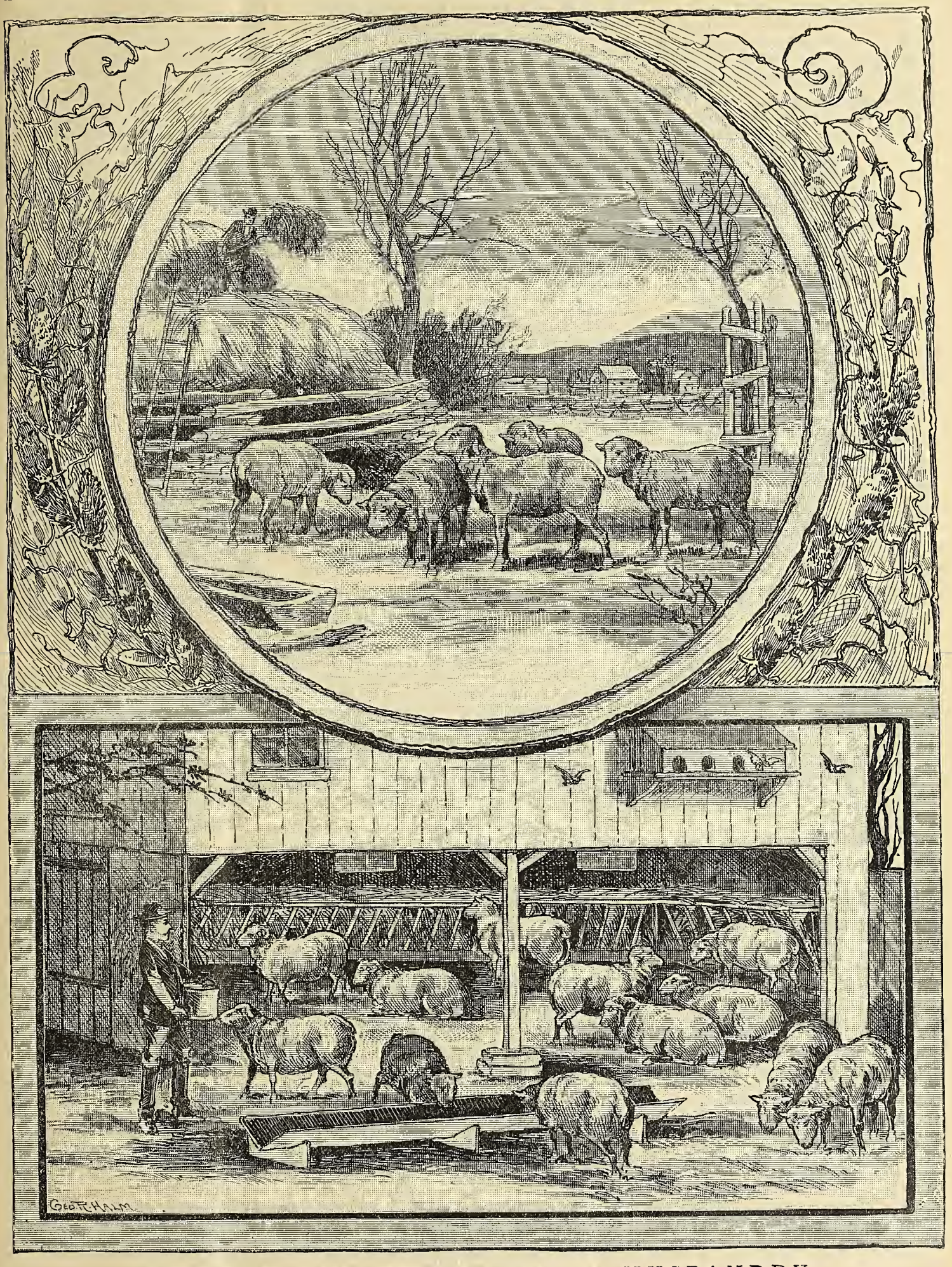
George Washington Tucker, who is fond of skunk hunting, and does quite a business in their oil and pelts, said: "I don't 'zactly understand what all this fuss is about. The Almighty made skunks, and I guess they are about as useful as some other critters that go about on tew legs. They kill insects that spile the farmers' crops. Nobody could deny that. They get fat on bugs and worms, and the ile was worth a dollar a gallon. There's nothin' like it for reumatis. The skins bring a good price, and roast skunk, ef a man knows how to dress 'em, is not bad eatin'. This puttin' a bounty on skunks, was takin' bread out of the mouths of poor folks. I like to go skunk hunting, and am agin this bounty."

Tucker's views had little weight with the meeting. A dollar bounty was put upon the fox, and a quarter of a dollar upon the skunk and woodchuck. A general slaughter of the skunks commenced soon after the meeting, and they need no monument. The fox hunts will come off when the snow falls. The hounds are on hand, and the old hunters have their guns and ammunitions in readiness. We shall not need the Newport gentry and their ladies at the meet. Hookertown will do its own fox hunting, without dog-cart or saddle, broken bones, destroyed crops, or damaged fences. The woodchucks will take their chances in the spring, when they come out of winter quarters.

As for the skunk, the bounty on his head is by no means a sure test of his demerit. There is a good deal of human nature about him—not wholly good, not altogether bad. There is no denying he is very bad in spots. That odor is terrible, as all Hookertown will testify—since the town meeting. You cannot go out for an evening to call on your neighbors, without inhaling it, and you are fortunate if you do not run a foul of the pest. And if you fall under his batteries, your garments have a perfume that no oil of rose can smother, no burial in charcoal or peat can deodorize. It is as fast as if it had been dyed in the wool. They must be banished from civilized use. This is the strong point of the animal unquestionably, and the suffocating odor will always be an effectual argument against him. But then he has his legitimate uses, and Hookertown has impeached its own wisdom in setting the same price on his head as upon the woodchuck. This marmot digs his den in your clover field, or on the border of your garden, and gloats over the prospect of high living on your clover blossoms, and bean pods. The skunk is one of the best scavengers among the insects which prey upon the farmer's crops. He is always at it, doing his work mostly by night while you are asleep, and does not intrude upon your labors by day. His scent-bag is his weapon of defence—only used when he is assailed. He is peaceable, and inodorous if you let him alone. "Ah!" you say; "but he eats eggs, and kills chickens." But don't you invite him to these repasts, by your careless poultry management? A poultry house with a door shut at night would make your eggs and chickens safe from his raids. "Ah! but he kills many young turkeys just as they are hatching." Then make your turkey-nests vermin-proof, and teach the turkey-hens to lay in them. This is done on many a farm, and it can be done on yours, and it guards against foxes as well. In any fair account kept with the skunk, the balance must be struck in his favor. Thus among the animals, we often find friends under the most unpromising appearances, and badly abused men are not unfrequently the benefactors of society.

Yours to command, TIMOTHY BUNKER, ESQ.

HOOKERTOWN, Dec. 1, 1883.



THE OLD AND NEW IN SHEEP HUSBANDRY.

Drawn and Engraved for the American Agriculturist.

Gate Hinges of Wood.

It is often convenient and economical, especially in newly settled regions where blacksmiths and hardware stores are not at hand to supply hinges for gates, to make them of wood. The simplest and most primitive form is shown in fig. 1. A post is selected having a large limb standing out at nearly right angles. A perpendicular hole in this

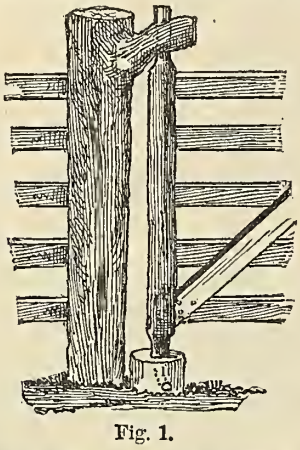


Fig. 1.

secures the top of the rear gate standard. The foot rests in a stout short post, set against the main post. A small gimlet hole should extend outward and downward from the lowest side or point in the hole in the short post, to act as a drain, or the water collecting in it would be likely to soon rot both the standard, and the short post itself. Another form is to hold the top by a strong wooden withe. A third form is illustrated in fig. 2, in which the

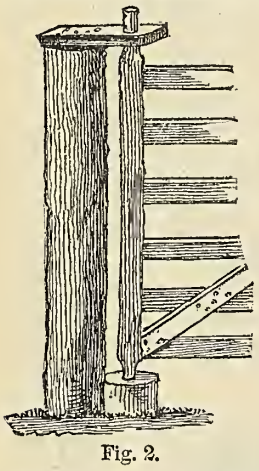


Fig. 2.



Fig. 3.

top of the standard passes through a short piece of sawed or split plank, spiked or pinned upon the top of the post. Figure 3 illustrates still another form, in which the top is held by a pin, having one end small enough to enter an auger hole near the top of the post, and keyed in on the opposite side. When loose or sagging, the pin-supporting piece can be easily driven in and keyed up farther.

Selecting Fowls for Eggs and for Market.

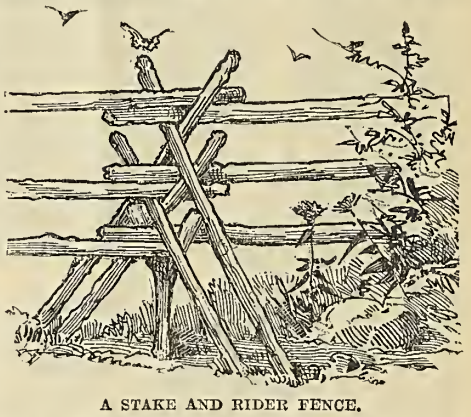
To make poultry profitable it is to be remembered that those breeds which lay the greater number of eggs during a single year do not produce the best chicks for market. Such fowls, though not deficient in quality, lack in size and hardiness. For egg production, the Leghorns, Black Spanish, Hamburgs, Houdans and Polish, being non sitters, do not lose time in sitting, but require the same period for moulting as the other breeds, and they are not always to be relied upon for laying in winter unless under very favorable conditions. The Leghorns and Hamburgs come to early maturity, and begin laying when about five months old. Pullets of these breeds, when hatched as early as March, come into service by September, and as a rule pullets which commence laying early in autumn usually continue to do so throughout the winter. The Houdans are larger than the Leghorns, but are best for early spring laying, though when crossed on Cochins and Brahmas they produce pullets that equal any breed, not only as layers, mothers, and in size, but for market also. The Polish are too tender when young for farm fowls, but produce eggs abundantly when fully matured.

When eggs are chiefly desired, a different selection of certain breeds must be made than when raising fowls for sale in the market, whether as adults or chicks. It is best always to endeavor to combine egg production with quick growth and weight of carcass, when this can be done, and the cross mentioned between the Houdan and the larger breeds is a good one; but such fowls are crested, and therefore subject to roup in wet seasons, while the color of the legs is not a bright, clear yellow. The Plymouth Rock is one of the most popular for market, possessing yellow skin and legs, but this breed requires time for maturing, as do the Brahmas and Cochins, which brings the pullets in for laying rather late. They fatten easily and remain so on a small allowance of food, but the tendency of the Plymouth Rocks to take on fat quickly, sometimes causes the hens to be unprofitable as layers. There is much diversity of opinion regarding the merits of the Plymouth Rocks as egg-producers. The facts are that if a flock of Plymouth Rocks kept in confinement, are fed very judiciously, avoiding an excess of starchy material, the results will be satisfactory, but not so when they are too highly fed without the privilege of exercise. Allowed to roam at will, however, they do excellently, for they are good foragers and search over the ground industriously. Crossed on any kind of large coarse hens, the Plymouth Rocks produce chicks that grow rapidly and weigh heavily at any age, and their heavy feathering and yellow appearance of legs, beak and skin, add materially to their marketable value.

In raising fowls for market, liberal feeding is the first requisite, and confinement does no injury, provided the yards and quarters are kept clean. The earlier the chicks come in, the higher are the prices obtained, those weighing between one and two pounds being the more salable at first, but later in the season the weights should be in the neighborhood of two pounds, and larger still as the season further advances. As high as eighty cents per pound is sometimes obtained for prime early spring broilers, and from forty to fifty cents is not an unusual price for them when brought to market early, even when not of the best quality. The best breeds for producing market chicks are the Plymouth Rocks, Wyandottes, and Langshans. The last named possess the quality of fineness of grain in the flesh, but have dark legs. This fault is however compensated for by quickness of growth, and the pullets that may be kept over for laying have been known to begin nearly as soon as the Leghorns, which is a very desirable characteristic in a large breed, for the Langshans are nearly as large as the Brahmas. The Wyandottes are very plump and compact in body, and the chicks have a round, attractive appearance. Where the cocks are changed every year, and it is desired to combine egg production, weight, and quick growth, a good beginning may be made by using Cochin or Brahma hens with a Plymouth Rock cock, followed the next season with a cock of the Houdan breed. The third year a Langshan may be substituted, and then a Wyandotte. Entirely new blood from different breeds will thus be introduced annually, invigorating the flock and improving it in all respects, but only pure-bred males should be used. A dash of Brahma blood, now and then, keeps up the size, but too frequent use of Brahma cocks conduces to legginess of the growing chicks, though the adults may be compact. The crossing with a Plymouth Rock cock every alternate season would not do harm; for heavy weight of chicks smaller breeds should be avoided, as they transmit their qualities to their offspring very strongly. Those who breed chicks for market would do well to make use only of the special breeds for the purpose, as very often the profit expected may depend entirely upon such judicious management of the flock. First select well, and then feed well.

A Fence of "Stakes and Riders."

A very common method with the "worm" or "Virginia" rail fence is to drive slanting stakes over the corners, in saw-horse style, and lay the top rail into the upper angle thus formed. The stakes, resting on the under rails and standing at an angle, brace the fence firmly. But the feet of the stakes extending beyond the jagged corners formed by the ends of the rails, are objectionable. We have seen this remedied in part by putting the stakes over the middle of the panels—at considerable distance apart—and laying in them long poles horizontally. In this case the stakes should be set at such an angle as to prevent their moving sidewise along the top rail, which should be a strong one. These stakes and long riders are frequently used to raise the hight of low stone walls. —Mr. Chas. H. Davis, of Warrenton, Va., sends a description and sketch of a fence nearly all composed of stakes and riders, which is used in that section. First, crotched stakes, formed by the forks of a branching tree limb, a foot or more long, are driven a foot or so into the ground at distances apart corresponding to the length of poles



A STAKE AND RIDER FENCE.

used. The bottom poles are laid into these, and two stakes, split or round poles, are driven over these and the next poles laid in. Then two more stakes and another pole, and so on as high as the fence is required. This will answer for larger animals, and be strong and not expensive. For swine, and other small live-stock, the crotch stakes would need to be very short, and the lower poles be somewhat small and begin close to the ground.

Barn-Yard Economy.

A dark stream, often of golden color, always of golden value, flows to waste from many an American barn-yard. This liquid fertility often enters the side ditch of the farm lane, sometimes of the highway, and empties into a brook, which removes it beyond the reach of plants that would greatly profit by it. Mice may gnaw a hole into the granary and daily abstract a small quantity of grain, or the skunks may reduce the profits of the poultry yards, but these leaks are small in comparison with that from the poorly constructed and ill-kept barn-yard. The most valuable part of manure is that which is very soluble, and unless it is retained by some absorbent, or kept from the drenching rains, it will be quickly out of reach. Manure is a manufactured product, and the success of all farm operations in the older States, depends upon the quantity and quality of this product. Other things being equal, the farmer who comes out in the spring with the largest amount of the best quality of manure, will be the one who finds farming pays the best. A barn-yard, whether on a side-hill or on a level, with all the rains free to fall upon the manure heap, should be so arranged as to lose none of the drainage. Side-hill barn-yards are common, because the barns thus located furnish a convenient cellar. A barrier of earth on the lower side of the yard can be quickly thrown up with a team and road-scraper, which will catch and hold the drenchings of the yard above, and the coarse, newly made manure will absorb the liquid and be benefited by

it. It would he better to have the manure made and kept under cover, always well protected from rains and melting snows. Only enough moisture should be present to keep it from fermenting too rapidly. An old farmer who let his manure take care of itself, once kept some of his sheep under cover and was greatly surprised at the increased value of the manure thus made. In fact, it was so "strong" that when scattered as thickly as the leached dung of the yard, it made a distinct belt of better grain in the field. The testimony was so much in favor of the stall-made manure, that this farmer is now keeping all his live stock under cover, and the farm is yielding larger crops and growing richer year by year. If it pays to stop any leak in the granary, it is all the more important to look well to the manure that furnishes the food, that feeds the plants, that grow the grain, that fills the grain bin. At this season the living mills are all grinding the hay and grain, and yielding the by-products of the manure heap. Much may he saved in spring work by letting this heap be as small as out-door yard feeding and the winds and rains can make it, but such saving is like that of the economic sportsman who went out with the idea of using as little powder and lead as possible. In farming, grow the largest possible crops, even though it takes a week or more of steady hard work to get the rich, heavy, well-prepared manure upon the fields More than this, enrich the land by throwing every stream of fertility back upon the acres which have yielded it. Watch the manure heap as you would a mine of gold.

Farming Does Pay.

BY A NEW-FANGLED FARMER.

"Does Farming Pay?" is an old, dried-up question. As an honest farmer of my own school, I answer that it will, without doubt, where more attention is paid to the saving of time, which has a great value in the market. Too much time is allowed to be wasted in small lots; "every minute saved is two minutes earned"—please make a minute of it. Put your foot on it, and do not let a minute get away. Be always doing, or get your boys to do so.

Besides money, there is nothing like saving time. Since I first followed the plow when a boy (for fish worms) I have always made it my object to make the most out of every minute, and I can assure you that my style of farming has paid, from the fact that at my present time of life there are not more than one or two mortgages on my farm, and they could easily be removed by the money. In agricultural economy there is nothing like doing two things at once, and my most distant relatives and friends say that I am a humane, easy farmer, and I lay claim to being industrious. Now you know every farmer loses a great deal of time just in grinding his axes and knives. I have changed all this. By a slight contrivance on the other side of the grind-stone, I have attached a self-feeding straw-cutter; so when the boy turns the grind-stone, the straw-cutter goes at the same rate, and thus two objects are accomplished at the same time—if the boy does growl, and growling doesn't make it any easier, goodness knows. I can't see how it could.

In seeding time one of my boys goes into the field and scatters the grain broad-cast with ease at the same time he pulls behind him a light harrow of my own construction, and the seed is harrowed in. Thus you readily see the expense of a drill and several horses is saved. I am trying to study out a plan for attaching a clod-roller behind the harrow to save the boy the time and the trouble of going over the field the second time, at which he might growl. Hoeing corn and potatoes is slow work; so I furnish my boys with handles that have two hoes on them, and of course they do double the work that one does, as you will allow; and in harvest my cradles have a back blade as well as a front one, so they cut backward as well as forward; and as the old wood-saw only cuts as it goes down through a stick, I have had one made for my boys that also cuts coming back, and thus it saves half the time. When "agents" of any kind call on me, or even my neighbors, I invite them to the barn and get them to help me husk corn, while I listen to their talk; and you see I get a good deal of work done while I am getting a good deal of valuable information, and nobody loses any time—but them.

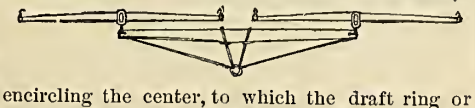
To assist the women-folks in their work and facilitate it, I have attached the churn to the washing-machine, and one girl can wash and churn at the same time, while another can be devoting her attention to something else equally necessary; and with the same end in view, I have attached the cradle for the twins to the sewing machine, so that my wife, who does most of the sewing for the family, can save the extra work of one of the girls tending the cradle, which would be pretty much all the time. Domestic economy is one of my most favorite studies, and without it no farmer can get along successfully. In cold weather, if one of my girls must have a beau and a fire in the front room, I place a kettle of apple butter on the parlor stove, so that she can stir the apple butter and do her courting at the same time. I regret that several kettles have not turned out good this winter; I don't know why. When our relatives come out from town to visit us, it is kind of a relief to me to get them to assist me at something about the farm, as it seems to shorten my own work, and they generally work as long as they remain; but urgent business at home too often shortens their stay. You know that it generally takes one man to run a clover-huller, and one to run the fanning-mill. Now I philosophized, and found out that if I placed the two machines close together, and one of the boys between them with the left hand on one crank and the right hand on the other, both of them would go, and so I do not have to hire an extra hand. Many a farmer would never think of this, simple as it is; and it was with a great deal of hard study that even I arrived at it, and I had nothing but a good common school education either. I have shown our girls the efficacy of knitting while they are going to town in the wagon, and by this plan, so far, our family are all pretty well supplied with socks for the winter, and no time lost!

Another thing we have done without losing time this winter; the mud that the hands and ourselves have brought up to the house on our boots, without any trouble, has been used to fill up around the back porch, and you would hardly imagine how much has been done, and no extra work. For my own part, I cannot see why farming does not pay by my plan. I make it a rule also, to come away from town with more money than I leave in it, which again is in my favor; and while some farmers take the worst of their produce to market and foolishly eat the best, I would never do it, for I argue that town people want something good as well as anybody else, and will pay for it. We have, so far, managed to live on what we knew other people wouldn't pay for.

his
ABNER + APPLEBLOSSOM.
Witness, A. W. BELLAW. mark.

A Light, Strong Double-Tree.

Mr. F. Grundy sends us a sketch and brief description, suggesting an idea for so dividing the strain or leverage on a double-tree as to allow it to be much lighter than usual. In the ordinary double-tree each end is the long arm of a lever, its short arm being only half the width of the band

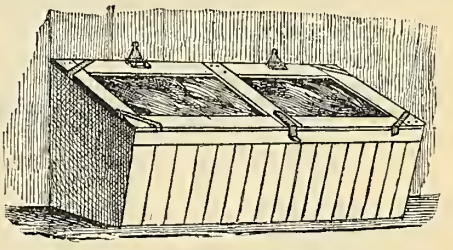


encircling the center, to which the draft ring or hook is attached. His idea is to substitute for the center band or ring, two iron rods, one a little distance on each side of the center; carry these back a foot or so, where they unite in a ring. From this ring and welded to it, an iron rod on each side extends to the end of the double-tree, passes through a groove sufficiently deep to hold it, and is turned in a hook in front to catch the ring in the center of the whiffle-tree. The rod is held in its place at the end of the double-tree by an iron strap rivcted over it. His idea is that the draft is thus distributed along the double-tree, or at least to four points on it. This plan properly adjusted would allow a much lighter timber to be used. The details for length and distance apart of the central rods, the mode of bringing the four rods together and forming the bar ring, etc., can probably be readily adjusted by a blacksmith.—As described, the arrangement will answer for occasional use, but for hard wear the angular rods would need a stronger attachment to the end of the double-tree than simply lying in a groove with an iron strap over it, and they would soon wear into the wood.

Cross-bars for Mangers and Troughs.

BY PICKET.

This device is intended as a convenient arrangement to prevent animals eating at mangers or troughs from throwing out the food, and yet allow these receptacles to be fully opened for cleaning,



MANGER BARS.

etc., which cannot be done if the cross-bars are fixed. A strong frame is made to fit the top of the manger, as seen in the engraving. It is hinged at the back so as to be turned up against the wall whenever desired, and is held down in front by a spring hasp. Cross-bars are run across from front to rear, just wide enough apart to allow the animal to clean the bottom of the manger. This width will depend upon its depth, and whether used for cattle, horses, or sheep. The same arrangement is convenient for hog-troughs, as cross-bars are essential not only to prevent their getting their feet into the trough, or throwing out food, but to give the smaller swine and pigs a chance for their due share. These, and in fact all other feed-troughs need frequent cleaning.

A Home-Made Chicken Brooder.

Many of the difficulties in raising young chicks, arise from improper ventilation. To secure pure air and warmth at the same time, has troubled many poultry breeders, not because of its impossibility, but on account of the large expense involved. The recommendations to use sheep skins for the young chicks to nestle under, or water tanks for them to retire under for warmth, are not bad ideas, but recent experiments have demonstrated that they are freer from disease, thrive better, and are less liable to danger from overcrowding, when surrounded by a constant current of pure air. A cheap apparatus for warming a brooder may be made with a coil of a few feet of half-inch lead-pipe. Thin pipe is best, as it is more quickly heated, is not soon injured by water, is comparatively secure from leaks, and is cheap. One end of the coil is lower than the other, that cold air may enter it in making the circuits of the coil, and it becomes warmer by the time it emerges from the higher end. The coil is set in a small boiler filled with water, and placed on an ordinary, single-burner, coal-oil stove, taking care to have the ends of the coil free from obstruction. Make a box large enough to accommodate the desired number of chicks, of any preferred form, and attach a rubber tube to the coil, and conduct the heated air into the brooder through the top, thus bringing it directly over and upon the chicks, and crowding down all impurities by forcing the cold air out at the openings for egress and ingress of the chicks. The cold air, being entirely pure when it enters the coil, is heated as

it passes on, and rubber being a non-conductor of heat, little of it escapes after the air enters the brooder. Observe that if the coil at its free end is not lower than at its entrance into the brooder, warm air would pass the other way, and cool instead of warm the coops. Such a brooder can be constructed cheaply, and if a large boiler be used to furnish the heat, the number of coils can be increased to warm several brooders at once.

Poultry House—Cost $43.96.

SECOND PRIZE: BY H. A. KUHN, ATLANTA, GA.

My Poultry House is used for keeping twenty-five to thirty grown fowls. For breeding I run a parti-

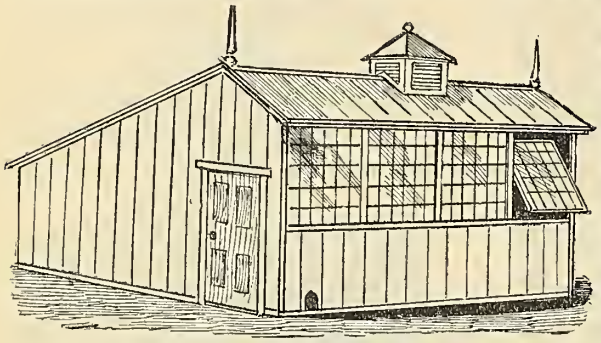


Fig. 1.—EXTERIOR OF POULTRY HOUSE.

tion through the center and keep eight to fifteen in each apartment, according to the breed. In this latitude it is seldom so cold that they cannot remain in the open air some part of the day. In cold windy weather they only run in the front yard, where they keep quite comfortable, as it is closely planked on all sides except on the south, which has lattice or woven wire.—The structure is sixteen feet square, facing the south. No posts are used. Scantling cut of proper length are laid on the ground in shape. A couple of planks are nailed on each end and raised into position when the longer or side scantlings are set in place. The planks or boards are then all nailed on, and the rafters are next added. These are notched to fit over both the scantling or plate, and the outside plank. This house was built of all heart yellow pine, and required about two hundred and fifty feet of scantling and twelve hundred feet of plank. It was built in two day's time by two men at one dollar and seventy-five cents per day wages, or seven dollars for the work. The windows swing open as in fig. 1. By adding another room this house would hold fifty fowls. Figs. 2 and 3 show the interior.

MATERIALS AND COST.—Of one inch thick boards: 1,000 feet one foot wide for sides, roof, nests, etc.; 12 base boards, 6 inches wide and 16 feet long; 10 boards, 3 inches wide and 16 feet

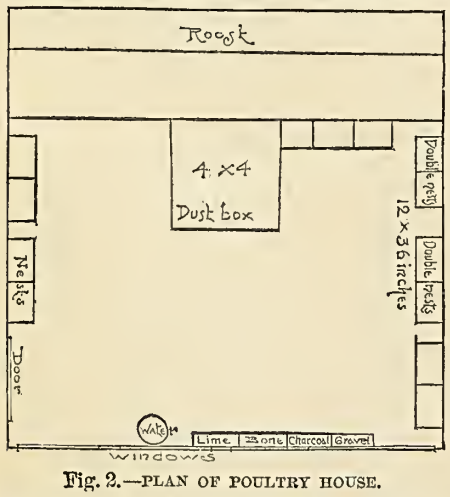


Fig. 2.—PLAN OF POULTRY HOUSE.

long for boxes and roof strips, etc.; 6 boards, 4 inches wide and 16 feet long, for window casings; 7 scantlings, 2 by 4 inches, 18 feet long; 17 pieces scantlings, 2 by 3 inches, 16 feet long, for studs, etc.; 4 windows, 4 by 5 feet, costing two dollars and a half each; one door, 3 by 7 feet, costing two dollars. Labor and nails, ten dollars. The total cost is forty-three dollars and ninety-six cents.

Prairie Tree Planting—A Suggestion.

Along most of the streams, large and small, in Kansas and Nebraska, are patches of a rich black loam which bear no grass, but are covered during the growing season with a dense mass of weeds. These places are flooded in high water, and are usually difficult to cultivate satisfactorily. It is not generally known that such places can be turned into timber plantations with no expense except planting the trees, and keeping the fire out afterwards. Select seedling trees from three to five feet high, and plant them four to six feet apart. They should be so large as not to be too deeply overshadowed by weeds the first year; but they will hold their own and come out right, even when not half as high as the tallest weeds. Such land has no stiff sod, and but little grass. If they have been deeply flooded the first season, when the water subsides see that they have not been covered by drift, either earth or dry weeds. The kinds of trees most suitable for this are: Box Elder, Ash, Elm, Cottonwood, Soft Maple, and Catalpa. Walnuts would thrive, but it is sometimes difficult to transplant them. It is said that nuts planted in such places will grow and do well, but the writer has had no experience with them; the other trees above mentioned, he has tried successfully.

Indian Corn—Its Value in the Ration.

Some English writers seem disposed to decry maize as being very poor food for beasts and poultry. There is danger of their leading their follow-

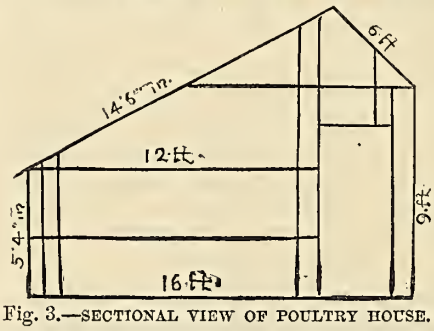


Fig. 3.—SECTIONAL VIEW OF POULTRY HOUSE.

ers to lose the advantage of a most excellent and cheap article as a portion of a complete ration. Indian corn is not only valuable food for horses, cattle, sheep, swine and poultry, but for man, and the writer sincerely hopes the time may never come when it shall not form an important portion of his own daily bread. The fact is, Americans do not eat enough corn for their own good, and eat far too much fine wheat flour in one form or another.

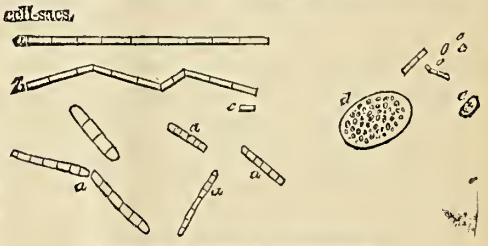
Corn is so rich in oil that we may say cornbread is ready buttered; it is, however, very digestible, and in cold weather this oiliness is a most valuable factor, as it serves to keep up the heat of the body more directly than starch and similar substances.—With oats and barley it may form one-third of the grain ration of hard worked draft horses, and will keep their coats glossy and be in every way a benefit, certainly worth more than its weight in oats. Fed alone or in larger proportion, it has a tendency to make horses sweat easily, and, it is said, to become quickly exhausted. It is not safe to feed it as freely as oats or barley, as there is danger of impaction and colic—just as there would be if wheat were so fed. No doubt it is best fed ground with oats, and the proportions already indicated are probably the most satisfactory, the meal being fed upon cut hay.

For cows in milk, corn meal may form with bran the exclusive grain ration, and may be fed at the rate of one pint of corn meal to each hundred pounds of the cow's live weight. No doubt it will be found just as good in Great Britain as here. It gives quality and richness to the milk, color to the butter, and abundance to the flow if the cow is a good one; but if she is inclined to lay on fat, such feeding will cause her to fatten, even though in full milk, and if she gets too fat she will go dry.

For sheep, corn is excellent, but should be fed whole and a little at a time. For swine, the universal experience from Maine to Oregon, and from Canada to Mexico, is that it will make more and better pork than any other food. For poultry, it is in this country the universal grain, but is not always the best. It is admirable for its fattening properties, but for laying hens, and growing fowls, it is not well to use too much. "Corn fed" fowls, ducks and geese are firm fleshed and yet tender. They bear transportation alive with little shrinkage. True yellow corn makes yellow butter and yellow fat in fowls. English and French taste demands white fleshed poultry with pale lardy fat, and so they fatten poultry on rice, and their fancy market fowls have about as much flavor as boiled rice. The American market demands yellow-fleshed fowls, with fat as yellow as June butter, and corn is the food to produce this in all poultry.

What are Bacteria?

The newspapers have recently reported that cholera and some other diseases have been found to be due to "Bacteria;" and also that epidemics among sheep and fatal diseases among cattle are caused by "Bacteria." The authors of these accounts seem to think that when they have given a name to the alleged cause their duty is discharged, but those who read ask: "What are Bacteria?" The dictionaries give no help in answering this query, and some of our readers appeal to the *American Agriculturist*. *Bacteria* is the plural of *Bacterium*, a name given to a very low form of plant life, which is never seen except with the microscope, as they are only one-twenty-thousandth of an inch in diameter. The engraving shows the appearance presented by the different forms as seen under the microscope. A single *bacterium* is shown at *c*. A number are most commonly joined end to end, as in *a* and *b*, to form rod-like bodies. They get their name from this peculiarity; the Greek name for a rod or a cane, is *bactrys*, and thus these rod-like forms of microscopic life were named *Bacteria*. Wherever fermentation or decay is going on, vast numbers of *bacteria* are found. It is now known that yeast causes fermentation because it mainly consists of minute microscopic plants, somewhat like *bacteria*. These minute yeast-plants, when growing in liquids containing starch, sugar and other matters, cause them to undergo the changes known as fermentation. It is now claimed that *bacteria* within the bodies of ani-



BACTERIA, HIGHLY MAGNIFIED.

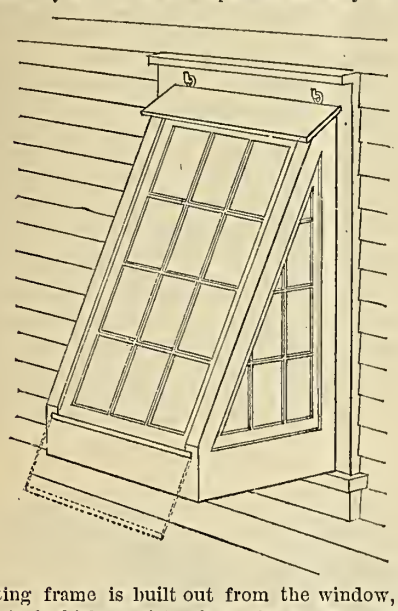
mals, including man, in making their growth produce changes similar to those of fermentation, and cause diseases. The spores of *bacteria*, or reproductive bodies answering to the seeds of flowering plants, are carried about in great numbers in the air.

THOSE who have forced Hyacinths and other "Dutch Bulbs" in pots, often throw them away, under the impression that they are not worth further trouble. If, after the faded flowers are cut away, the bulbs are kept watered so long as the leaves remain green and healthy, the bulbs may do good service yet. When the foliage begins to turn yellow, withhold water from the pots, and when the

leaves are faded, cut them away and place the pots in the cellar. Next spring the bulbs may be planted out in the garden, where they will continue to flower for years—not so finely as at first, but the flowers will be very useful for cutting, and well worth the room they occupy in the flower garden.

A Window Conservatory.

Those who cultivate plants in windows, often wish to increase the available space. This may be secured by constructing a conservatory like that shown in the engraving, the sketch for which was sent us by Mr. M. R. Thompson of this city. A pro-



jecting frame is built out from the window, the front of which consists of a sash, so arranged that it may be pushed down for ventilation, to the point shown by the dotted lines. The sides are inclosed in proper sashes. This arrangement allows a fuller exposure to light than can possibly be had in an ordinary window, and will give satisfaction out of proportion to its cost.

Flower Forcing in the Window.

Those who have no green-houses, but whose plant culture in winter is confined to a sunny window, may enjoy a few flowers without even the trouble of growing them, if they are fortunate enough to find one of our common evergreen shrubs, the Leather-leaf. This is usually one to two feet high, with its branches terminated by one-sided clusters of flower buds that are very much advanced in autumn. It is common in bogs and swampy places in all the Northern States, as far west as Wisconsin, as cranberry cultivators know to their cost, it being a most troublesome plant or weed in their plantations. Many winters ago we gathered a cluster of these flowering stems, being attracted by their beauty even in their undeveloped state. These were placed in water, in a window, and to our great surprise the buds gradually increased in size, and at length were in as fine flower as if they had been left on the bushes until spring. These are so neat and pleasing, and the flowers last so long, that the plants are worth searching for. Besides the name above given, the plant is in some localities called "Feather-leaf" and "Gander-bush;" its botanical name is *Cassandra calyculata*. Our success with this, suggested trying the "Trailing Arbutus," or "May-flower" (*Epigæa repens*). This in a warm room was an utter failure, but a clump of it laid in a shallow dish, supplied with water as needed, and kept in a room where there was no fire, opened its charming fragrant flowers quite satisfactorily. We have no doubt that the Partridge-berry (*Mitchella*) would succeed with similar treatment. A shrub from Japan (*Forsythia viridissima*), often called "Golden Bell," is one of the earliest of all the spring-blooming shrubs, and is now quite common in cultivation. The ends of the slender stems of this, if cut any time during the winter and placed in water in a warm room, will soon hang out its golden bells, and give a lively bit of color and a foretaste of spring. Among the willows, the European "Sallow" or "Goat-Willow" (*Salix Caprea*) is frequently cultivated. The staminate or sterile tree has very large and showy catkins, which are produced early in spring, and in the north of Europe the twigs are used on Palm Sunday as a substitute for real palms. If twigs of this are placed in water, the catkins will soon bloom in a sitting-room. Some of our own willows will probably flower if treated in the same manner, especially a very common one, known to boys as "Pussy Willow" (*Salix discolor*). The forcing of plants in this manner offers a field for experiment for those interested in such matters, and it is probable that the list of those available for inexpensive home decoration may be much enlarged.

Forwarding Plants.

Mr. S. J. Andrews, Clinton, Ont., sends us a sketch and description of his mode of starting plants early, protecting the roots from grubs and insects, and giving them a good send-off. Pieces of pasteboard, three by six inches, are bent together in the form of a square box or tube, (fig. 1,) three inches long and an inch and a half in diameter, the two ends of the piece simply coming together at one corner of the tube. A box (fig. 2,) one foot deep and of any size desired, is half filled at the bottom with half-rotted manure. Upon this the pasteboard boxes are set in closely together and nearly filled with rich loam, on the top of which two to four seeds of cabbage, tomato, etc., are dropped in each tube. Over the whole is then scattered a quarter inch deep, a mixture of loam, ashes and poultry droppings. Mr. A. says: "Thus arranged with the aid of the slight bottom heat, the plants came up very quickly and made a vigorous growth. When a few inches high, I removed all but one plant to a tube, and taking off the side of the box the tubes, plants and soil were easily removed to the open ground, and planted without the slightest disturbance of the roots. These plants, alongside of others set out in the usual manner, showed all summer a marked difference in size and growth, and in autumn a much larger crop. I claim for the tubes cheapness in material and construction, no disturbance of roots in transplanting out, protection from worms, grubs, etc., while the roots are small and tender; and that the fertilized earth in the tubes give them efficient help when the young roots most need aid to take hold of the soil when set out. The soil in the box and tubes would need to be kept moist enough by sprinkling with milk-warm water, or supplying it from below.

These tubes, if of strong pasteboard, can be kept for use the next season. A box, a single foot square, would hold sixty-four of the tubes for as many plants; a box two feet square would hold two hundred and fifty-six. Any second-hand boxes of various sizes can be used, and the only cost will be for the pasteboard. This can be procured and the tubes and the boxes made ready in any number during these leisure winter months.

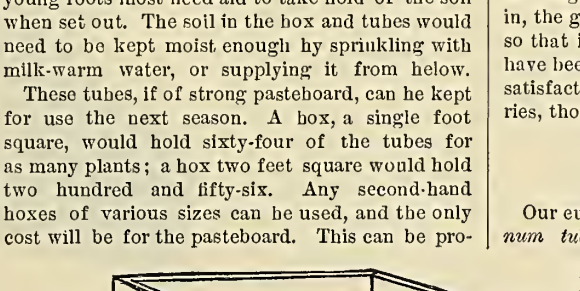


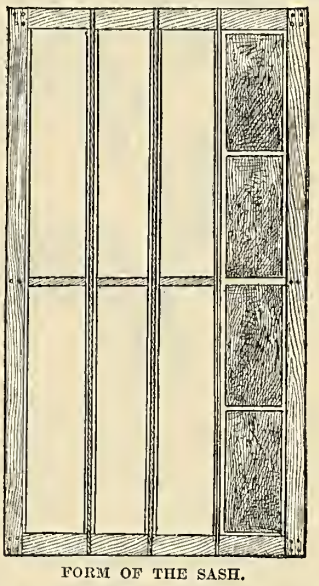
Fig. 1. Fig. 2.—BOX OF BOXES FOR PLANTS.

HARD ON THE NAMES.—We thought, when one of our Broadway fruit stands exhibited the sign "Dan Joe Pears" (d'Anjou), that horticultural nomenclature had a hard strain, but the "Gardener's Chronicle" (Eng.) gives us some still more striking perversions. A Covent Garden market-man has that beautiful climber, *Stephanotis*, as "Stiffer Notice" (he must be an advertising agent). But worse yet was a label from a gentlemen's greenhouse that read, "Rinkum sperum, Jesse Mindes," which, when translated, stood for *Rhynchospermum jasminoides*.

Home-Made Sashes for Hot-Beds.

Sashes for hot-beds, cold-frames, and green-houses are manufactured at nearly all sash-factories, but it frequently happens that these factories are located many miles from the gardener who wants the sashes. If they are ordered through the local lumber merchant, his profit and the freight charges will make them rather expensive. While factory-made sashes are desirable, they are not indispensable. We give below an engraving which shows how a home-made sash, for hot-beds, etc., that has the merit of cheapness, is constructed.

The frame is of inch-and-a-half pine. The end pieces three inches, and the side pieces two inches wide. The cross-bar under the center is one inch



FORM OF THE SASH.

square. The sash contains sixteen panes of eight by ten glass, which is a useful size. The bars of the sash are each composed of two laths—one divided lengthwise, and one whole. The divided lath is fastened to each side of the whole one, and forms the ledges upon which the glass rests. When set in, the glass is lapped about a quarter of an inch, so that it will shed rain. Sashes thus constructed have been in use several years, and given as good satisfaction as those obtained from the sash-factories, though they did not cost one-fourth as much.

A New Potato.

Our cultivated potatoes are derived from *Solanum tuberosum*, and we have new varieties of these by the dozens every year. The European journals now announce an entirely new species of *Solanum* with edible tubers, *Solanum Ohroudi*, so named from the person who discovered it on an uninhabited island at the mouth of the river La Plata in South America. This new potato has been tried at Brest, in the north of France, and appears to have qualities which may be of value when it has been improved by careful culture. Among others, it promises to be hardy, and when once established, it remains in the soil from year to year. It remains to be seen if this is a desirable property. Think of a potato becoming a weed, and forcing its tubers upon us whether we wish them or not! The dwarf habit of the vine, not exceeding a foot in hight, its freedom from disease, and its hardiness, all make it worthy of being thoroughly tested. On the other hand, the difficulty of rooting it out where once planted will make our planters cautious of it, should it be introduced among us.

The Chick-Pea.—"Coffee Plant."

The Chick-pea (*Cicer arietinum*), one of the oldest of cultivated plants, every now and then is sent us to know what it is, or by some one who has received it as the "coffee-plant," to know its value as a substitute for coffee. The Chick-pea was hardly known in this country until about twenty years ago, when some enterprising person advertised it as the "coffee-plant," and advised every one to grow his own coffee. The Chick-pea is related to the common pea, and like that, is an annual.



THE CHICK-PEA (*Cicer arietinum*).

It grows about a foot and a half high, and is covered with fine hairs. The engraving of a small branch shows the shape of the leaves and the small pods, which contain one, or at most, two seeds. These are rather larger than common peas; they are so strongly wrinkled that they have been compared to ram's heads. This has given the plant its specific name, *arietinum*. The Chick-pea is cultivated in all warm countries. In India it is sold as a food for horses under the name of "gram." It is cultivated in Mexico, where as "garabanza," the Spanish name, it is esteemed as a luxury. We have eaten it there and found it a very coarse food, far inferior to the *frijoles*, or beans of the country. The reputation of the Chick-pea as a substitute for coffee has not yet died out, and we are often asked about it. There is no substitute for coffee. It is either coffee or no coffee. Still, for a warm, colored drink, Chick-pea is just as good as roasted rye, brown-bread crumbs, or parched Indian corn—and no better. Any starchy grain, when roasted, will give a colored infusion, but it is not coffee. As the Chick-pea belongs to a warm country, and its yield is small, it is not likely to gain a prominent place among our crops for "coffee" or other purpose.

Raisin Making in California.

Mr. George Husmann, so long identified with grape culture in Missouri, a few years ago removed to California, where he manages a large vineyard. In preparing a revised edition of his "Grape-Growing and Wine-Making," he has given several chapters upon grape-growing and wine-making in California, which add materially to the size of the work, and essentially increases its value. Very few are aware of the vast proportions the making of raisins has assumed in California. Some persons have several hundred acres in vines, the fruit of which is converted into raisins, and many more vineyards planted for the same purpose, will soon come into bearing. The following extracts from the chapter on "Raisin-making," will give an idea of the manner of carrying on this important industry:

Raisins are made from the Muscatella, Gordo Blanco, and Muscat of Alexandria, preferably of the former; also a seedless raisin, highly esteemed, is made from the seedless Sultana. The grapes should be allowed to remain on the vine until quite ripe, and show a yellowish or golden color, and are more translucent than when too green. Then they should be carefully picked and placed upon a drying tray (usually two by three feet in size), and exposed, with an inclination toward the sun, in some convenient place, generally between the rows in the vineyard, or in some contiguous open land. After having been exposed a sufficient time to become about half dried, they are turned once in this manner, viz: two workmen taking an empty tray, place it upon a full one, holding them firmly together, and with a swinging motion turn them over, and replace the now turned grapes in their former position. The turning should be done before the dew is quite off of the grapes in the early morning; then, when the grapes have become so dry as to lose their ashy appearance, some being a little too green and some quite dry enough, they are, after removing those entirely too green, slid from the tray into large sweating boxes, having a thick sheet of paper between about every twenty-five or thirty pounds of raisins; then removed to the store-room, where they should remain two weeks or more. When ready to pack, it will be found that the too moist ones have parted with their surplus moisture, which has been absorbed by the stems and drier raisins. The stems are now tough and the raisins soft and ready to pack. They are carefully placed in packing frames made of iron or steel. The large and fair ones being placed carefully in the bottom of the frames, the surplus stems and imperfect berries cut away, then the average raisins are arranged in and weighed, placing five pounds in each frame, pressed enough to make them firm in the frame, but not enough to break the skin. They are then transferred to the packing-boxes by the aid of the movable bottom to the frame.

The complaint is sometimes made that the California raisins have tough skins, too large and too many seeds, lose flavor in cooking, lose their bloom, and do not keep well. The most of these objections arise from an imperfect knowledge of the best varieties from which to make them. If Californians would confine themselves to varieties which centuries of experience have proved to be best in Europe, there would be more satisfaction in the result. Cultivation, irrigation, local climate, kind of soil, and exposure to the sun, all have an influence in modifying the characteristics of any one variety. Virgin soil and vigor of vine may make the seeds fuller, as it does in the cereals, but it should not, other things being equal, make skins thicker, but the contrary.

As a soil for raisins, a rich, sandy loam is preferred; the climate should be warm; the soil moist; winter irrigation in average years is quite as important as summer in our dry valleys. For safety against many kinds of insect pests, the phylloxera especially, a location is desirable where water is plenty and evenness of land surface permits winter submersion. In such favorable locations a larger berry, thinner skin, better yield, etc., will be the result. The vines are planted eight by eight feet in many locations, but growers of the greatest experience prefer a greater distance apart; some plant eight feet by ten feet, some ten by ten feet, thus giving greater vigor to each vine, enabling it to resist enemies of all kinds much more surely.

An Almost Forgotten Fruit—The Apricot.

One need not be very old to recollect when the apricot was a common fruit, and, in its season, abundant even in small places. Some thirty years ago the Apricot grew less common, and is now so rare that when occasionally offered in the City fruit stores it arrests attention, and many even ask the name of the strange fruit. Indeed the few offered come chiefly from California, and bring a very high price. The cause of this disappearance of the apricot in the older States, is not due to any conditions of climate, but to the prevalence of the curculio, which has so interfered with the cultivation of the plum. Means were at once taken to save the plums, but it was not known that the same insect was destroying the apricot, and the remedy was not applied. Now that we can have plums in spite of the "Little Turk," the apricot should be restored to its former place among our fruits. The apricot was formerly placed in a distinct genus (*Armeniaca*), but botanists now include the plum, cherry, peach, and apricot, in one large genus, *Prunus*, and the apricot is named *Prunus Armeniaca*. The present specific, and the former generic name, both indicate that Armenia was thought to be the native country of the apricot. Recent travellers have failed to find any evidence that the tree is indigenous to that country. In the latest work on the origin of cultivated plants (Decandolle, *L'origine des Plantes Cultivées*), the author finds that the weight of evidence is in favor of China as the original home of the apricot. While the fruit is mentioned by the early Greek and Roman writers, the records of China, some three thousand years before the Christian era, show that the fruit was known to the celestials at that early period. The apricot forms a small tree, not over twenty feet high, and is readily distinguished from the related peach, plum, etc., by its large, glossy, heart-shaped leaves. These are shown in the engraving, and also the general appearance of the fruit. It is the earliest of all fruit trees to flower, and on this account its fruiting is sometimes prevented by late spring frosts. In bloom it is very showy; its flowers, either pure white or tinted like those of the peach, are in great abundance. The fruit varies from an inch and a half to two and a half inches in diameter, with the general aspect of the peach, and



THE APRICOT.

like it, usually has a more or less distinct "suture" on one side. It differs greatly from the peach in its stone, which is quite smooth, like that of the plum. The skin is downy, much more so in some varieties than in others. Having been so long in cultivation, many varieties have been produced, in some of which the flesh adheres to the stone, and in others is free; as in the almond, the kernel is sweet or bitter in different varieties. The flesh of the apricot is much like the peach in texture, but very unlike it in flavor. Coming in just after cherries and before early peaches, the apricot is very acceptable. It is valued not only for the dessert, but for canning, drying, etc., and it should be restored to its place among our popular fruits. If the same method was followed as with the plum—a systematic daily jarring of the trees, and catching the curculios on a cloth, the fruit may be again abundant. In the nurseries the apricot is budded upon the seedling apricots, and also on plum, peach and almond stocks. The plum is best for this, especially for planting in heavy soils. By shortening in the yearly growth as with the peach, the apricot will form a compact head, and be more fruitful. The tree is sometimes trained against walls and buildings. When this is done, it should be on the side least exposed to the sun. Our best nurseries offer twenty or more varieties. For a small garden, Downing recommends "Large Early," "Breda," the "Peach Apricot," and "Moorpark." For a cold climate, he selects "Red Masculine," "Roman," and "Breda." Let us have apricots.

The Sweet Gum Tree.

We trust that the recently awakened interest in forestry—the planting of trees to grow timber—will also call attention to the value of our native trees for ornamental purposes. If one who wishes to plant them to beautify his grounds consults a nursery catalogue, he finds that the greater share of the trees now offered are of foreign origin, while our most ornamental native trees are difficult to procure. Among the most desirable trees for ornamental purposes, is the Sweet Gum (*Liquidambar styraciflua*), and in New York and New Jersey, is often called Bilsted. This tree is found west-



Fig. 1.—FLOWERS AND FRUIT OF SWEET GUM.

ward to Illinois, and southward to Texas and Mexico. It forms a large tree, sixty feet or more high, and two or three feet in diameter. The old trees have a deeply furrowed bark, similar to that of some oaks. Its young branches are winged with wide longitudinal ridges of a corky growth. The leaves are rounded in their general outline, but deeply divided into five and sometimes seven pointed lobes, which give them a striking, star-like appearance; they are of a dark-green color and a firm texture. In autumn they assume a deep purplish red, and are so showy, that the tree is worth



Fig. 2.—A YOUNG SWEET GUM TREE.

planting for the beauty of its autumn foliage. The flowers of the Sweet Gum are of two kinds, both very small. The staminate or male flowers are in small conical clusters which soon fall. The pistillate, or fertile flowers, are in globular clusters, which ripen into a spherical head, made up of beaked capsules which open to let out the small seeds. Figure 1 shows the ripe fruit and the pistillate flowers, and figure 2 gives the port of the tree when young. Both its generic name, *Liquidambar*, and its specific name, *styraciflua*, have reference to a quality only manifested in warm countries. In Louisiana and in Mexico it has exuded, when wounded, a sort of balsam like Styrax, which is deficient in the tree grown in the Northern States. As a timber tree, the Sweet Gum does not hold a high rank. Its wood is compact and fine-grained, it has a pleasing reddish color, and takes a fine polish. It is only of value for inside work, as it is very perishable when exposed. The tree cannot be recommended for economical planting, as we have so many better kinds, but as an ornamental tree, it is one of the finest, and in making a select collection of trees, this should not be over-looked.

A Change in the Color of Indian Corn.

Mr. Edward B. Bates, Worcester Co., Md., communicates the following experience: "I have always considered yellow to be the original color of Indian corn. In 1882, my white corn, from clean seed with no chance of mixture, gave me about two ears of red corn in every fifty bushels, and this was remarkably even in its distribution in the field. In 1883, I took the best of this red corn and planted fourteen rows, two hundred and thirty-seven hills in length. These were immediately between pure white and pure yellow varieties, the white was on the west and north, that being the direction from which all mixing or crossing comes in this locality. When the corn was husked the red corn had nearly all become yellow. According to the usual mode of crossing here, if any change occurred it should have been to white; not more than a hundred hills produced red corn, and that quite scattered. In my white corn there was not a single red ear." Mr. B.'s inference from this occurrence is, that "the original color of corn is yellow, and that white is a sport caused and established by cultivation. That the red is an intermediate step in returning to the original color. In selecting the red corn of 1882, I only eliminated all that was inclined to revert to the original color.—What does the *American Agriculturist* think of it?"

As Indian corn is not known in the wild state we have no means of knowing the original color. Bonafous, in his work "The Natural History of Maize," states that he has had the colored kinds keep true for ten consecutive years, and mentions a white kind that had been cultivated for more than a century without change. In a plant that has proved itself so variable as corn, and has been cultivated so long under many opportunities for crossing to occur, such variations are to be expected. Mr. B. asks the question: "Does not yellow corn cross more readily and affect more strongly the white, than the white does the yellow?" This is a question upon which we should like evidence.

The Maiden-Hair Fern.

A lady writes us that while she succeeds with other ferns in her fern-case, all her attempts at growing the most graceful of our native ferns—the Maiden-hair—have failed, and she asks how to succeed with it. Fern-cases are expected to be at their best in winter. In order to have them showy at this season, the ferns must be evergreen species, either native or foreign. Many of our native ferns appear in spring, make their growth, and die down at the end of the season. The Maiden-hair is one of these. If it is taken up in summer and planted in the fern-case, it will die down as winter approaches, and there is no help for it. The Maidenhair fern can best be cultivated in an outdoor fernery. A lot of stones, with earth from the woods among them, in a shaded place, will allow lovers of ferns to grow them with very little trouble. In making a rock-work like this, take care that all the pockets of woods earth connect with the soil below, else they will dry out. The Maiden-hair fern is quite common in rich, moist woods, as far south as North Carolina. Its frond, at the top of a slender, black, polished stalk, is handsomely divided, with its divisions of a pale green color. Our species is *Adiantum pedatum*. The generic name, *Adiantum*, is from the Greek, meaning unwetted, as the fronds repel rain-drops. An allied European species has long been used in France to make a syrup called *capillaire*, much used for coughs, etc. Our species will answer the



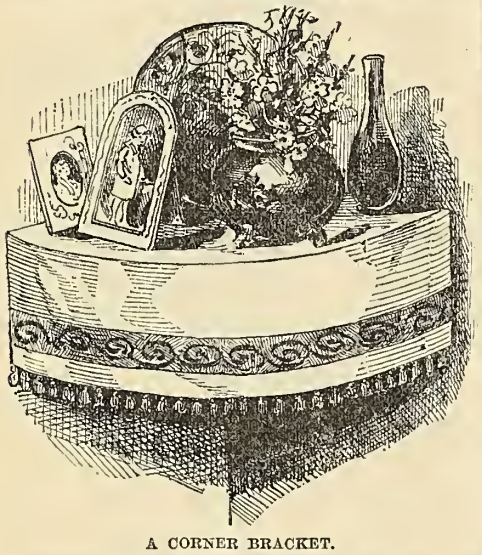
THE MAIDEN-HAIR FERN.

same purpose. It yields to boiling water considerable mucilage and a bitter principle. The genus *Adiantum* is a large one; some of its species from tropical countries are among the most beautiful ornaments of our hot-houses. Some of the exotic species are much larger than ours, and, being perennial, may be grown with success,

THE HOUSEHOLD

A Corner Bracket.

A large bracket, fastened to the wall in a corner in such a manner that it is capable of supporting considerable weight, is very useful and answers many purposes of a small stand. As supports, screw firmly to the wall two narrow pieces of board, an inch thick, at any desired hight; two and a half feet from the floor, or the hight of an ordinary stand, is convenient. The shelf may project twelve



A CORNER BRACKET.

to eighteen inches from the inner corner, with rounded front. The cover may be of any material preferred. Cut one piece for the top and a straight piece, ten to twelve inches deep, according to the size of the bracket, and long enough to go around its front. Trim this piece with a band of a contrasting color about two and a half inches wide; finish the lower edge with fringe, and seam the two pieces together. Cut the cover for the top two inches larger than the board, so that it can be drawn down over the edge and tacked on the wrong side. To prevent its tipping by any weight, fasten to the wall with a small piece of leather or strong muslin, under the inside corner of the top. Dark-red felt, with a band of deep-gray or brown plush, makes a pretty cover. The good part of a worn-out coat can often be used. Many kinds of gray or brown cloth are very good on the wrong side, after the right side is quite worn and faded, and by cleaning and pressing it may be made to look almost as well as new cloth. A band of embroidered canvas may be used in place of the plush, or some pattern may be worked directly on the stuff. If in a bedroom where there are window curtains of chintz, the bracket may be covered to match, leaving off the band around the front and finishing off the lower edge with fringe, or a plaiting of the chintz. MRS. BUSYHAND.

House-Furnishing.

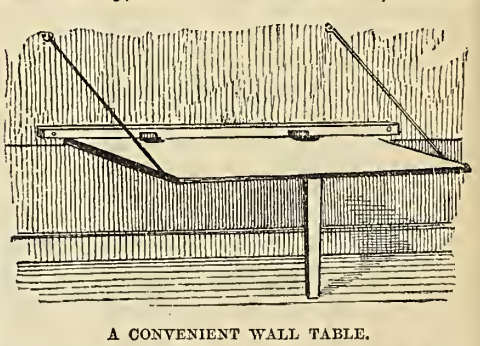
A lady of limited means, but of rare taste, whose touch molded almost everything into something beautiful, and whose success in all practical matters pertaining to every-day home life made her an oracle to the young and inexperienced, recently said: "I have never coveted any lady's jewels, silks, and laces, or even her position in 'society;' but I am afraid I have sadly broken the Tenth Commandment when I have seen the beautiful, well-ordered homes of some of my friends, where every department seemed complete and filled with all that could be desired for health, comfort and beauty." There are thousands of ladies with the same longings, and who, if they have an extra five dollars, would much rather spend it for home decoration than on dress for themselves. It is possible with limited income to make a very modest home more attractive than a much richer one, and its influence on the family, especially upon children, cannot be estimated. Such a home does more to form the character for good, than the teachings or discipline of parents. We would like occasionally to help those trying to make pleasant, cheery homes, who have not the means to employ a professional decorator, but whose own heads and hands must design and do all. For these comforts we would say: A home where the furnishing of each room has been thought out and perhaps worked out by mother and daughters, has a value to father and sons far beyond one committed to some stranger to "furnish throughout as stylish as possible," at any cost. Its influence does not cease when it is broken up, but reaches down through generations in other homes.

Harmony of color is of the first importance in furnishing. Not that walls, carpet, curtains, chairs, etc., should be of the same color; that would make a room cold and uninviting. There should be two or three colors in a room, but these should harmonize. If one is conscious that she has no eye for color, she should consult some one of known taste before purchasing articles which, although by themselves might be desirable, would perhaps if placed with others spoil the effect of the whole, and be a disappointment to be endured for years. A carpet for instance should not be purchased without considering what the color of the paint is; and so of the sofa and chairs, if they are upholstered. A carpet is like the background of a picture, it brings into effect the whole. Styles for carpets have entirely changed within a few years. Patterns of huge bouquets of impossible flowers used to be seen almost everywhere; now a very small, set figure, so small as to look almost like a plain color at a little distance, is in much better taste. This may be enlivened by a border of bright colors. The lovely pearl and gray grounds, with vines or tracery of a darker shade, and bright borders of Persian patterns, are very desirable, and look well with almost everything. The fashion of staining floors black-walnut color for a yard or more around the walls, and having a square of bordered carpet in the centre, is gaining ground, and much liked for the pretty style and the convenience of taking it up for cleaning. It is also economical. There are now plain, ingrain carpetings, in solid colors, called "filling," which are used around these center rugs, instead of staining the floor. We have seen parlors carpeted with dark, turquoise-blue filling, with Persian rugs over them, not in any set or regular order. The effect was very good.

Curtains are a very important part of furnishing. Of course there must be shades. There ought to be drapery, however simple; no one thing adds more to the pleasant, cheery look of a room. Shades are now rarely white, but tinted, either gray, cream, or old-gold color. They should never be of a very deep shade. Many use red for the dining-room, but that color is better suited to some public place. A fringe about two and one-half inches wide finishes the bottom. For drapery there are many beautiful and artistic patterns in Nottingham lace, which is low-priced and durable. They may be selected to look so like real lace that they can hardly be distinguished from it. The yellowish tint should be chosen, and in light patterns. Lineu scrim, with inserting and edging of guipure lace, is always handsome. Simple cheese cloth, plain or figured muslin, or cretonne, are all pretty. Heavy fabrics should be used only in large and richly furnished rooms. They may be used with good effect for portieres, to hide or replace a door, or to separate rooms. Heavy lambrequins are not in style. Curtains are hung with rings on poles of brass or wood, and the lambrequin, if any, is straight across, narrow or broad, embroidered, or trimmed with fringe, or it may be a simple plaiting. Mantel lambrequins are a plain scarf across the front, with decorated ends hanging low. There is often, as a back ground for ornaments above the mantel, a curtain, plain or plaited, of the material of the lambrequin, about half a yard wide, hung upon a rod with rings. This may be of velvet paper, beaded by a narrow gilt molding. Halls are no longer the barren entrances to the home, but are a part of it. Old and quaint chairs look well here, and if there is a window, a drapery curtain with a large plant on a small stand, is very pretty. An ornamental umbrella stand is often seen in halls, instead of the old heavy marble-top stand. We will go farther into the home at some future time. ETHEL STONE.

Drop-leaf Tables.

Tables of a single leaf hinged to the wall are very convenient, and should be in much more general use. They are useful in almost any room in the house, and can be of any desired size. A simple small desk, for a dictionary or other reference book, a writing or study desk, a temporary shelf for plants, a kitchen table, etc., may each be constructed in this manner, and be of the breadth and length required for the use for which they are designed, or that the space will allow. When not in use, they can be dropped down or turned up against the wall, or be so arranged as to be removed entirely. A correspondent sends the sketch of one in his own kitchen, made thus: "A double-beaded strip, about three inches wide, an inch

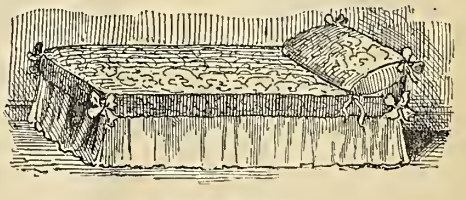


A CONVENIENT WALL TABLE.

thick, and about three and a half feet long, is firmly attached to the wall, about thirty inches above the floor. A drop-leaf eighteen inches wide is strongly hinged to this, and supported by a swinging leg, or by side chains, indicated by the dark lines. The chains are more secure and reliable. When not in use, it is raised and held against the wall by a button. Neatly made, it is not unsightly, and is very useful in baking, washing dishes, etc."—Unless very strong, it would hardly be firm enough for such heavy work. We have used such a table supported by stout irons wire for a long time.

A Home-made Lounge.

Many things can be made for the kitchen at little expense, which will add greatly to its comfort and attractiveness. A lounge is almost as restful to a weary woman as a rocking chair, and may well be in every kitchen large enough to hold one. Here is one which serves not only as a lounge, but as a repository for many things required in the house-



A CHEAP LOUNGE.

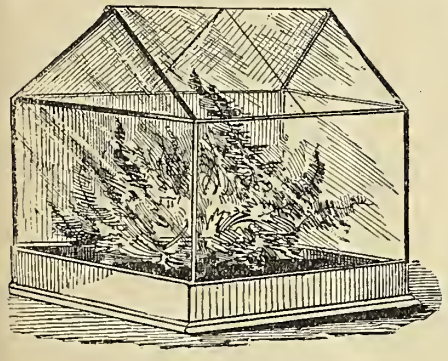
hold. It was, to begin with, a box six feet long, about two feet wide, and fourteen inches high, as, to be comfortable, it should be low and wide. To the top a cover was fitted, hung with hinges at the back. Four casters were added to the corners. For a covering, a pretty, cheerful cretonne was chosen, as this material is durable, if of good quality, and it does not absorb and retain dust, like most woollen cloths. Of course any material can be used, old dresses often making effective coverings.

If there is not enough of one material to cover all alike, the valance can be different. A patchwork cover might be pretty. First, tack on the valance, just deep enough to clear the floor. Begin at one of the back corners; make a little fold in the cloth every two inches, and tack to the upper edge of the box. These folds will give the necessary fullness to make the valance hang well. For the cover, make a tick of coarse canvas, or something similar, a little larger than the top of the box. Fill with straw, curled shavings, stripped husks, or something similar; feathers may be used by those who have and prefer them. To hold the tick firmly, take a stout cloth of any kind, new, or that previously used for other purposes, and tack it along one side of the cover; draw it tightly over the tick, and tack to the other side, fastening the ends similarly. Now add the final covering, which should be wide and long enough to extend down over the opening, upon the valance. It can be fastened to the cover edges with brass-headed nails, or plain or tinned furniture tacks. The tacks may be covered, if desired, with a running cord, sewed on. The corners may be finished, if one wishes, with a bow of ribbon, or cord and tassel. A pillow may be made of the same materials as the tick, or a common pillow be used with a tick like the lounge covering. If the end be set in a corner or against a wall, the pillow will be held in place. Bedding and many other articles may be stored inside the spacious box.

A Home-made Fernery.

BY EBEN E. REXFORD.

If you have a north window in which you cannot grow flowering plants satisfactorily, make a fernery for it. Ferns, and other plants which do well in ferneries, delight in shade, and with them a north window can be rendered very pleasant for all fond of delicate plants. To watch the development of the tiny fronds into long and airy plumes, is a con-



A BOX FOR FERNS.

stant delight to the lover of nature. A fernery can be made at home that will answer all purposes, without being expensive. For the foundation have a zinc pan made at least six inches deep. Most pans for ferns are too shallow to give the roots much chance to spread, and the plants are likely to be crowded. Provide a box as deep as the pan, and large enough for it to set in. One of inch boards, sides and bottom, will be strong enough to allow moving the case, when filled, without wrenching it. Groove the upper inside corner of the four side pieces, to admit the glass. Then make four posts for the corners, long enough to rise at least eighteen inches above the box, and groove the inside corners. Around the top of these put a rail, grooved on its lower inside corner. The frame, when properly made, with the grooves matching, will let glass slip into its place on the sides and ends. They can be secured by glazier's tins. If you prefer a flat-top case, cut a groove in each upper inside corner of the top rail, and have the glass cut to fit. I prefer one with a roof like covering. This form needs three sets of rafters, which can be fitted to the top-rail. This will require two triangular pieces of glass, to fill the space at the ends between top rail and rafters; the end rafters as well as top rails must be grooved, to form a sash for these pieces. To the lower end of these rafters fit a piece of wood, projecting a little above their upper flat edge, to support the glass which is to cover the case. A ridge-piece is also needed. The accompanying sketch will, I think, explain the whole. Cut the grooves for the glass so that, when placed together, it will serve as a sash. Fasten the frame with long, slender nails. Paint thoroughly. The box looks well with a heavy molding at the bottom, and a lighter one at the top, though this is not necessary. The joints will probably not be air-tight, and the plants will do all the better for that. Another article will tell how my home-made fernery is stocked with ferns and other plants, and how it is managed.

About Coughs and Colds.

MRS. LUCY RANDOLPH, WOODSTOCK, VA.

Coughs and colds are prevalent now, especially among children, too often from the ignorance or carelessness of their elder guardians. Many mothers appear to accept with resignation the repeated and violent colds from which their children suffer as providential and unavoidable. A cold is by no means always due to exposure. Indigestion, constipation, a lack of scrupulous cleanliness, the unwise habit of sleeping in much of the clothing worn during the day, unaired bed chambers—all, or any of these things may have far more to do with your child's tendency to cold than the keenest breath of the bracing winter air. And in great measure these things are under your control. Mothers should understand that it is a fact, whether they can see how it is or not, that numerous colds and sore-throats are directly traceable to indigestion and dietetic errors. Quantities of greasy food, fried meats, pastry, and the like, ill-ventilated rooms, and continued constipation, have to answer for many cases of croup, and putrid sore throats. All these things weaken the system and render it far less able to resist changes of temperature.—Give every bedroom a thorough airing every day, more especially if several children are obliged to sleep together, or with their parents. This is to be avoided, if possible: if not, always lower a window slightly from the top—or if this cannot be done, raise it from below. There is frequently bad air enough generated and breathed in the sleeping apartment of a family with small children, to supply them all not only colds, but with a number of so-called "malarious" diseases, to last a year, perhaps longer. Neglect of bathing is another prolific source of colds. A child from three to ten years old should certainly receive an entire bath twice a week in winter. A warm bath at night, taking special care to avoid any chill after, will frequently break up a sudden cold. Keep children from playing in chilly, unused rooms in autumn and winter weather. Let them play out of doors as much as possible, taking care to have their feet warm and dry. A flannel suit and rubber overshoes will often save much cough medicine and doctor's bills. Keep them warmly clad, but do not be content with thick coats and worsted hoods, while short skirts barely cover their knees, leaving the limbs chilled.

A Sand-Paper Block.

Sand-paper is put up by the manufacturers in quires of sheets nine by eleven inches in size. As used by many workmen, nearly a fourth of each

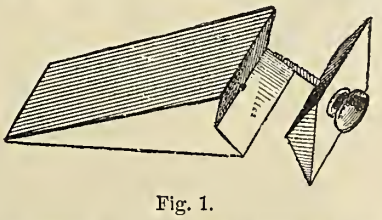


Fig. 1.

sheet is wasted by folding and crumpling over improperly shaped blocks. A convenient block for use (fig. 1), and permitting the use of all the paper, is here described. Make a wedge-shaped piece of hard-wood, one and a half inch thick, three inches wide, and five and one-quarter inches long, tapering from the head to a sharp edge. Cut a V-shaped hollow across the head. Fit a piece three inches long, of hard-wood, exactly to this hollow.

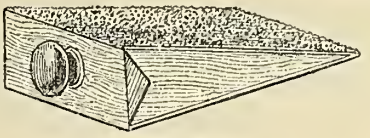


Fig. 2.

Insert in the head a wood or porcelain drawer knob seven-eighths of an inch in diameter, fastening it securely by a long screw. Cut a sheet of sand-paper into three equal parts, three by eleven inches. Fold under three-sixteenth inch at each end of a strip, and put them under the head-piece by loosening the same. Tightening the screw will hold it fast and smooth for work. A common wood screw may be used in place of the knob, but is not as convenient, as it must be turned by a screw-driver.

Line Carving.

An improved tool for line carving can be made from a veining tool or smallest fluting gouge. Heat the end red hot over a spirit lamp or in the



Fig.—A TOOL FOR LINE CARVING.

fire carefully, not to overheat or rust it. Bend it under and back like fig. 1, so that it will cut with a draw motion. Do not forget to retemper it. Two sizes of this shape, one-eighth and three-sixteen inches wide, with a straight one-quarter inch fluting gouge and a three-eighth inch flat sweep gouge are all the tools necessary for quite elaborate patterns. A boy can learn to carve orna-



Fig. 2.—A DESIGN FOR LINE CARVING.

mental lines in a few minutes with this tool, without danger of running away from the pattern.

Suppose it is required to line carve a design like fig. 2 for the front of a wall pocket. With pencil and ruler mark the center of the piece to be ornamented, and other guide lines if necessary. Sketch the pattern with pencil lines on the surface. Fasten the piece to be carved so that it can easily be turned about if desired. Carve the principal lines of the pattern, after which the details can be cut with the tool best adapted to the design. Full sized designs on paper can be easily transferred to the wood by pricking through the paper with a needle. Line carving, as a means of decorating surfaces, offers an infinite variety of designs, and is easily learned. Artistic designs suitable for the purpose have long been used by the book-binders and ornamental painters. A little study of any figure will enable the carver to reproduce it off-hand at will. Then with chisel in hand, most beautiful decorations can be produced in a few minutes, when the surface of the wood is of a color to strongly contrast with the lines, cut through it. When the surface is the same as the under part, as in solid walnut, the lines may be gilded or painted.



How to Make a Toboggan.

The following description of a Toboggan with sketches is sent us by Henry M. Weld, aged fourteen years: Toboggans were first made by the Indians, who used them because they cover much snow, and thus support a very heavy weight without breaking the crust or pressing into the soft snow. They are very light to handle, as one six feet long, eighteen inches wide and three-eighths inch in thickness, weighs only twelve or fifteen pounds. They chiefly are made in Canada, where they are much used for coasting. I have had some experience with them and will relate it. I had an oak

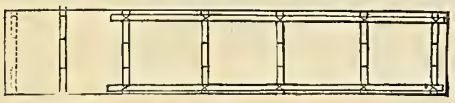
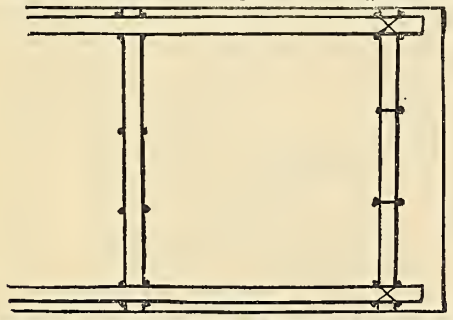


Fig. 1.—TOBOGGAN BEFORE BENDING.

board, seven feet long and fifteen inches wide, planed down to three-eighths of an inch thick, but would have preferred one a foot longer and three inches wider. I soaked about two feet of one end in hot water until flexible, and then bent it around a round block of wood about a foot in diameter and fastened it so as to make a curve about three-quarters of a circle, leaving it to dry and harden. For an eight-foot board there should be seven cross pieces as long as the sled is wide, and about thirteen inches apart, and two side pieces running from the



2.—HOW CROSS-PIECES AND RAVES ARE FASTENED.

back of the sled to about two feet from the front. These should be fastened over the ends of the cross pieces. My cross pieces were made of hickory sticks worked about three-quarters of an inch square, and the side pieces of a straight hickory stick of about the same width, split in two. To fasten them on, the first cross piece should be laid down at least an inch from the back, and then the holes marked for fastening it on, four at each end and two at one-third the width of the board from each side. Do the same thing for each cross piece, and bore the holes. I used a small gimlet, and fas-

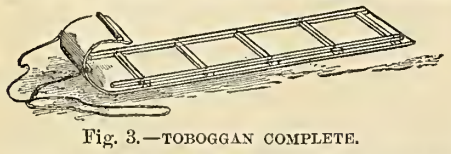


Fig. 3.—TOBOGGAN COMPLETE.

tened on the strips with copper wire. When all the holes are bored, turn the board bottom side up and cut grooves between the pairs of holes and parallel to the sides, for the binding wire or cord to fit into so as not to be cut by snow or ice or stop the sled. All the cross pieces are fastened by the holes nearest the center except the front one, which is attached to the opposite side from the others, so that when the board is bent over it will be on the upper side. It is well to have the second cross piece from the front end made a little longer than the width of the sled to fasten the line to draw it by. The side pieces, or raves, are fastened on over the ends of the cross sticks. These are tied to the cross sticks through the four holes beneath so as to hold the cross pieces as well as the raves firmly. The bottom, as soon as removed from the log, is tightly tied to the third cross piece with wire or strips of leather, always leaving the knots or twists on the upper side, and if wire so that the ends will not catch the clothes. The drawing rope is fastened to the second cross piece and your sled is ready for the snow. Oak board is best, but if not available, hickory or ash will do. Never take a dry or well-seasoned board, as I did, for it is sure to crack in bending. This sled is steered with a strong stick four feet long, pointed at each end, held in front.

About St. Valentine's Day.

BY ISABEL SMITHSON.

In one of the principal squares of grand old Rome, stands an ancient stone gate-way, known as the Porta del Popolo, or Gate of the People.—It is nearly sixteen hundred years old, and when first built was named the Porta Valentine, or Valentine's Gate, because it led to the church of St. Valentine.—This seems to be a strange beginning for an account of the pretty festival of lace paper and spangles, and gay lover's-knots; yet true, that to find out the meaning of the little rhyme,

"On the 14th of February fine,
I take you for my Valentine,"

we must go to that ancient city which was once the mistress of nations, the queen of the pagan world. In those earlier days the last half of February was held as a religious festival, and the fifteenth day, which was dedicated to Juno the queen of Heaven, and Pan the god of forests and streams, was known as the Feast of Juno Februata.—One of the customs was for young men and maidens to meet, dressed in their best, when each girl's name would be written down separately, and then all these names were shaken well together in a box. Next, each young man drew out a name, and to the girl who chanced to fall to his lot he would give pretty presents and offer himself as partner in the dancing and feastings which followed. The reason for fifteenth of February, was that the birds were supposed to choose their mates on that day. In Italy of course warm weather begins much earlier than with us.—This drawing of names was a very amusing affair, and would have been a harmless one had not the merry-makings generally ended in rioting and drinking, as indeed all pagan festivities were nearly sure to do.—So when Rome began to be a Christian city, the pastors of the church did all they could to stop the festival, but they found this very difficult because the young people were devoted to it, and the drawing of names was long continued even among Christians. There were some changes made, however. The day was called St. Valentine's, and the names drawn were known as valentines. The date was also afterwards altered from the fifteenth to the fourteenth of February.

St. Valentine himself, whose name is now associated with pleasant surprises and loving messages, was a faithful pastor of the "early Christians," and lived in Rome during the third century. The pagan emperor, Claudius II., ordered that all persons avowing themselves Christians should be tortured and put to death, and Valentine went about among his flock, cheering the frightened ones, praying with the dying, and burying the dead. For this he was thrown into prison himself, and refusing to become an idolator, he was cruelly beaten with clubs and then beheaded on February 14th, which chanced to be the eve of the feast of Juno Februata—hence the change of name and date of the pagan festival—and this is all the good brave old man had to do with the custom still bearing his name.

In the seventeenth century the bishop of Geneva, Francis of Sales, put a final stop to the practice of drawing girls' names on St. Valentine's Day, but allowed the people instead to write the names of saints, or holy men and women, on slips of paper and after "drawing" these, try their best to imitate the goodness and piety of the owners of the names. Thus the pagan ceremony became a Christian one.

The modern practice of sending poetic messages on this day is a very old one, and it is hard to say just how and where it began. Chaucer, the first great English poet, speaks of it in his works which were written in the fourteenth century, and Shakespeare and many other poets mention it. The so-called "comic" valentines are of much later origin, yet let us hope not an American invention, for they are as a rule not funny at all, but only coarse and ugly, and very apt to hurt the feelings of the receiver. In the time of Charles II. it was also the fashion in England and Scotland for friends to draw each other's names on St. Valentine's Day, and give presents as we do on birthdays. The first person known to have sent a written valentine was Charles, Duke of Orleans, a brave French nobleman, who was taken prisoner by the English at the great battle of Agincourt, in 1415. Two hundred years after, a grand marriage was celebrated on St. Valentine's Day, when an English princess, Elizabeth, daughter of James I., was wedded to Frederick a German prince, and to this union is due the strange fact of the daughter of a German family being to-day on the throne of England. This wedding was written of by many poets, and one named Doune in particular composed a pretty poem about it, the first verse of which was:

"Hail, Bishop Valentine, whose day this is!
All the air is thy diocese;
And all the chirping choristers
And other birds, are thy parishioners."

The Doctor's Talks.

As I lifted a parcel a few days ago, by means of the string, the knot slipped and the parcel became undone. I was reminded by this of what an old sea-captain said to me when I was a youngster: "Every boy ought to be able to cling to a rope by his hands, and to tie a square knot." The clinging to a rope is something that most boys learn, without instruction, but many neglect to learn the square knot and go through life tying "granny knots," as sailors call those knots which do not hold. A square knot, the more it is pulled the tighter it will bind, and is just as easily made as those knots which come apart with a slight strain. Not only should every boy learn this knot, but girls

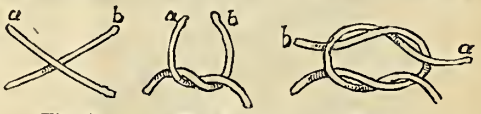


Fig. 1. Fig. 2. Fig. 3.

HOW TO TIE A SQUARE KNOT.

also, will find it useful. Shop-keepers have a saying that: "A woman cannot tie up a parcel, she always pins it." To be able to tie a knot that will hold, is an accomplishment quite as useful as many that girls learn. The square knot is best for tying parcels, and wherever two ropes or pieces of cord are to be joined to one another it is one of the safest.

TO TIE A SQUARE KNOT.

Take an end of the cord in each hand, and cross them, laying the right-hand end, *a*, over the left-hand end, *b*, as in fig. 1. Now pass the end, *b*, over toward you and under. This will bring the cords, as in fig. 2; then pass *a* over *b*, and through the loop, which will bring the parts as in fig. 3. By pulling the ends the knot will be closed, and no amount of strain will cause it to slip.

THE AURORA BOREALIS.

As several young people living in Western States have written me about the Aurora Borealis, I think that it must have been more frequent there than at the East, this winter. These boys especially wish to know what causes the Aurora. I am always glad to have such questions, as it shows a desire to learn, but in this instance, it cannot be satisfied. Though many observations have been made, the real nature of the Aurora has not been ascertained. There are many facts which show that the light is due in some manner to electricity, but how, is not known. Nor has it been learned why it should appear at some times and not at others. During the display of the light the compass needle is disturbed, and also the action of the telegraph; both being evidence that the display is electrical.

How Lady Bird and the Boys Kept Washington's Birthday.

BY AGNES (CARR) SAGE.

No school for boys in the whole State was more justly celebrated than the Rev. Dr. Bird's, situated on the edge of Millbrook, the large stone building crowning a high hill on the bank of the river, one of the beauties and features of the pretty village.—Few outside of the school house walls knew of the feud which for months had existed among the pupils, or of the battles royal which raged in the play-ground, in consequence of ill-feeling in the school-room. It all arose from some white mice that George Wilson brought from home in September, intending to teach them to perform various tricks, and present them on her birthday, to Effie Bird, the Doctor's only daughter. They were cunning little creatures, with bright pink eyes, and very tame, frisking up and down the curtains and over the sofa and chairs, but mouse-like, when let out of their cage, they would nibble whatever their sharp teeth could find. So it happened that they one day made sad havoc with a handsome copy of Shakespeare, belonging to Ned Brewster, one of the head boys, but which George had borrowed and carelessly left on his table.

Ned was furiously angry, and although George was his best friend and offered to get him a new book, he would accept no apology but went off breathing vengeance. He bided his time, however, and it was not until the eve of Effie's birthday, that George, on going to his room, found some one had let old Tabby, the family cat, loose in the apartment, and she had made short work of the poor little mice, which all lay dead on the floor, with green-eyed Tabby glowering over them. George was thunder-struck, and could hardly keep from crying over the cruel fate of his pets, and he quickly sought Ned, with flashing eyes, and clenched fist.

"I don't care," said Ned, "You had no right to bring nasty destructive pests like those into the school, and let them destroy our things."

"But it was a mean cowardly trick to set the cat upon my mice, as I know you did!" retorted George; and so angry words flew back and forth, the boys joining in the argument, until at last the school was pretty evenly divided into the "Cats" on one side, headed by Captain Ned Brewster, and the "Mice" on the other, led by Captain George Wilson. All through autumn and early winter they annoyed and tormented each other, as only school-boys can, fighting with fists, sticks, and snow-balls out-doors, and tongues and paper pellets—known among the scholars as "spit-balls"—within. So it went on until February Twenty-Second, the birthday of the Father of his Country, a holiday in the school, when the boys had planned a grand snow battle for championship of the school.

At one end of the long play-ground, three terraces led up to a flower garden, in summer gay with bright blossoms, but now covered with a white mantle, broken only by the rich dark evergreen trees, that bent gracefully under their weight of snow. This terrace was known as the "ramparts," and it was the ambition of each side to gain possession, and plant it's standard on the highest point.—It was a perfect winter's day, clear and cold, and the boys were on the play-ground at an early hour, preparing the ammunition of well packed snow bullets—the "Cats" waving their emblem of a bunch of swamp cat-tails, and the "Mice" returned it with a flourish of white everlastings, called among the country people "mouse-ear," a bright idea of little Tommy Tucker's, the wit, if not the wisdom of the whole school.

"Remember, no ice-balls are allowed," said George Wilson, as they drew up in line.—"Of course not, we know the rules of the school, as well as you," snapped Ned, for Dr. Bird had strictly forbidden these dangerous missiles. Sam Cox said nothing of the snow-balls he had slyly prepared with stones in the center, unknown even to his Captain, but he called out, "the Cats will make mince-meat of the Mice to-day, anyway!"—"We'd like to see them," shouted Tommy Tucker. "Our Captain's initials are the same as George Washington's, and he will be 'first in war,' too."

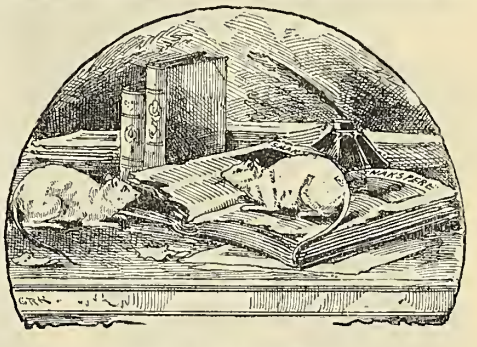
"Well, mine are the same as Napoleon Bonaparte's," retorted Ned, who was not to be daunted; "and he was as great a general as Washington, any day."—"Oh! oh! oh!" cried the Mice, for this was too much for the young Americans, and even some of the Cats hissed at the idea.—"Come on," and with me-ows, and squeaks, they started to gain the first parapet, contending every inch of the way, while the air was white with snow-balls that flew thick and fast. How they yelled and struggled, rubbing each other's faces, throwing one another down, rolling in the snow, and almost tearing the coats from their backs. It was very exciting, but several wounded had been removed from the field, with bruises and black eyes, which caused the Mice to begin to suspect Sam Cox's treachery, and increased their fury.—But in the very thickest of the fray, Ned Brewster suddenly shouted, "See, a flag of truce! a flag of truce!" which brought all to a standstill, and all eyes were turned toward the house, from which appeared, crossing the play-ground, what might have been taken for a snow image, so pale and fair was the young girl who now appeared, dressed all in white, a white fur coat wrapping her slender form, and a snowy cap crowning her long golden hair which floated on the wintry breeze, while in one hand she carried a white flag. "Lady Bird!" passed through the ranks.

"Oh! boys, boys; at it again!" she cried, "when will this dreadful quarrel end?"—"When Cats and Mice can live in peace together, I expect, Lady Bird," laughed George Wilson, using the girl's pet name by which she was usually called.

"Then we should have a happy family, indeed," she said.—"But we don't want any girls here now, spoiling our sport!" growled Sam Cox.—"For shame, shame!" and Sam was quickly landed in a snowdrift. "You forget who begged you off, when the Doctor was going to expel you," said Ned Brewster, severely.—"And who mends our gloves and sews on our buttons," said George.

"I shall never forget how kind Effie was when I had the fever," said one.—"Or how she always remembers our birthdays, and cheers us up when we are homesick," said another.—"She is the best girl that ever lived: hurrah for Lady Bird!" and all lads joined in cheering with hearty good will.

"Thank you, boys," said Effie, while a shade of pink stole into her cheeks. "I have done very little for you; but I want now to ask a favor. As I came up from the village I passed poor old Aunt Sukey's. She is nearly eighty years old, and bent over with the rheumatism. She was standing in the door, gazing at a great pile of wood the Benevolent Society had sent her. I stopped to speak to her, and she said, "Lor! little missis, jest see what them 'nevolents hab sent me. Dey mighty good, dey is; but Honey, how am old Aunt Sukey gwine to cut up dem big logs? Might as well try to chop down a tree."—"I could'nt answer, but I thought it would be such a nice way to keep the



THE MICE IN MISCHIEF

birthday of so great and good a man as Washington, if you boys would go and saw and pile the wood up in the shed, so poor black aunty won't have to wade through the snow whenever she makes a fire. Will you do it?"

"What'll become of the great battle then?" asked Tom Tucker.—"We'll have to declare a temporary peace," said George. "Which do you want to do this work, Effie, Cats or Mice, for you know we never work together?"—"Oh! both parties please join forces for this once."

"I'm agreed, if Ned is."—"Very well," said Ned, "if the fellows are willing."—"Yes, yes, anything to please Lady Bird," came from both sides.—"Then, forward march, Cats and Mice to the attack of the woodpile!" shouted both captains. So arming themselves with borrowed axes, hatchets and saws, they marched with military precision down the hill, headed by Lady Bird with the white flag.



THE FLAG OF TRUCE.—*Drawn and Engraved for the American Agriculturist.*

Old Aunt Sukey was much startled to see a bevy of rough schoolboys swarming over the fence into her little yard—for they scorned entering through the gate—but the sight of Effie reassured her, and when told their errand her wrinkled old face was one bunch of puckers as the tears and smiles chased each other across it, and she exclaimed, "Bress de dear young gemmans, dey eberyone deserve to be Gineral Washingtons and de President ob de United States." Meanwhile the boys fell vigorously to work chopping and sawing and splitting; and as "many hands make light work," the great pile rapidly decreased. It was half piled in the shed, and most of the boys were resting in the kitchen enjoying a plate of Aunt Sukey's doughnuts when a cry of pain made George Wilson, who was wrestling with an uncommonly hard pine knot, turn suddenly to see Ned Brewster lying on the ground, buried beneath several huge logs which had fallen upon him.—"Oh! help," he groaned; "call the boys!"—Forgetting that this was his enemy, George sprang to his assistance, removed alone the crushing wood, and helped Ned to rise; but he could not stand. "I turned my foot, when I slipped," he said.—"Lean on me," said George, and all were astonished to see the captain of the Mice helping the chief Cat to the house, taking off his boot and bringing water for Effie to bathe the injured part. Fortunately it did not prove very serious, and Ned was able to limp back to the school with the others. As they reached the gate, he blushed and stammered, "I am much obliged to you, George."—"You are welcome, I am sure," said George, holding out his hands, "but as you won't be able to fight again to-day, don't you think it is time to declare a peace? I believe you are as tired of this quarrel as I am. Let us shake hands and be friends."—Ned hesitated, but Effie took his hand and slipped it into George's, saying, "I am sure you will, Ned, since George has shown himself 'first in war, and first in peace,'"—"And first in the hearts of his school-fellows," shouted all the boys.

"I will order a copy of Shakespeare to-morrow," said George.—"And I will send to the city for the prettiest white mice to be found," said Ned.—Then every Cat embraced a Mouse, and so on Washington's Birthday the war of the Cats and the Mice came to an end forever. Dr. Bird met them at the house door, and fairly beamed upon the two captains through his gold bowed spectacles as he made them a little patriotic speech in honor of the day, and then invited all to a feast of good things in the dining-room. And at the end of the collation Lady Bird approached the two captains, who sat side by side, and begged to form a new regiment, to be called the "Happy Family Company," to which she presented a beautiful blue silk banner that she and her mother had made in anticipation of this glad event. On it was embroidered a peaceful looking cat with a wee mouse confidingly nestled between her paws.—The treaty of peace, formed at that time, I think was never broken.



AN OLD GAME FOR YOUNG BOYS.

Drawn and Engraved for the American Agriculturist.

"Buck, Buck, How Many Horns?"

Old Indian-fighters often say that when an Indian is out-yelled he considers himself whipped, and gives up the fight. Boys, especially if there is a slight dispute about the game, seem to act as if the side of the loudest shouters could gain the victory. The game of "Buck, Buck," can hardly be called a quiet one. The drawing of lots, the choosing of sides, and all the preparation for playing, as well as the game itself, are accompanied by much loud talk. One boy is chosen to be the "pillar," and the others are divided into two parties, the "bucks" and the "riders." Lots are drawn, to decide which side shall first be the bucks. These station themselves in a row, "making a back," as in leap-frog. The pillar does not seem to have much to do besides giving the first buck something to hold on by, and to see fair play. The riders get to their places, leap-frog fashion, and the first rider, holding up several fingers, says: "Buck, buck, how many horns do I hold up?" If the first buck guesses the right number, the rider takes his place at the rear of the line of bucks, while the lucky buck goes to the rear of the riders. The second buck now becomes the first one, and takes his turn at guessing. If the first buck does not guess the number, the first rider goes to the rear of the riders, and the buck guesses again at the number held up by rider number two, who moves up and becomes the first. So it goes on, the bucks and riders continually changing, making a lively and noisy game, and one that may become rather fatiguing to the bucks, should they not have good luck in guessing. The artist gives the game as he saw it played, and the picture will help in following the changes above described. In some parts of the country a variety of this game is called "Jump, little nag-tail." In this, the bucks are called "nags," and at a signal they rise up, and if the riders fall or touch the ground, they take their places with the nags. We do not know the rules of this game of "Nag Tail," which is evidently even more rude and noisy than the "Buck, Buck."

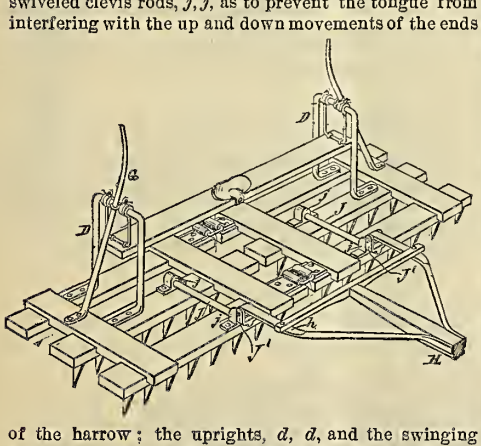
OUR RECORD
OF
Recent Agricultural Inventions.

It is a familiar observation that the development of scientific and mechanical aids to agriculture, during recent years, has changed and ameliorated the conditions of rural life more than all that had been done in that direction in many previous centuries. Especially in this country has rural life felt the beneficial effects of the social and industrial changes due to the creative activity of inventors, particularly American inventors, the larger number of whom have been farmers or the sons of farmers. That the future is destined to see changes in the means, methods and conditions of rural life, not less rapid and revolutionary than those of the immediate past, is evident from the increasing fertility of inventors in fields of thought having a direct bearing on agriculture and the surroundings of those who live thereby.

Under these circumstances it is naturally becoming more and more needful for farmers to know not only in a general way what our inventors are doing, but also to keep a close watch for all new ideas and devices likely to prove helpful to them or to their rivals in the markets of the world. This for many reasons—for two especially: that they may hold their own in competition with their neighbors; and still more that they may be able to adopt promptly for their own advantage, as inventors or users, any new inventions of use to them, or any useful suggestions that may come from inventions in other fields. It often happens that the clever adaptation of a device to a use radically different from the one the original inventor intended, has resulted in an invention of great pecuniary value. Quite as frequently very promising inventions fall short of real success for the reason that the inventor lacked a full knowledge of the conditions under which his invention was to be used, and so has missed a point of vital importance—a point which the practical and observant farmer may be just the man to supply. In the improvements of agricultural implements and machinery, as in every other connection, real knowledge and practical skill rightly applied are what the world wants most, and is most willing to pay well for.

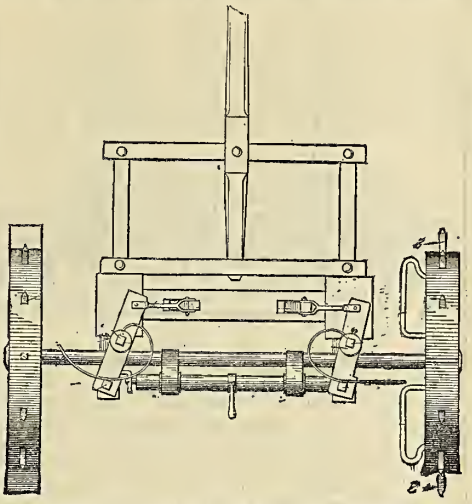
In view of these facts, it is believed that in adding to the *American Agriculturist* a new department, to contain each month, so far as our space may permit, a review of such of the latest inventions bearing upon rural life and affairs, as seem to be of promise, the value of our paper to all classes of readers will be materially increased. In each case our aim will be to give a clear statement of the nature and purpose of the invention, with so much of the inventor's claims as may appear to be of interest to our readers. The illustrations and descriptions are gotten up entirely at our own expense and by our own editors. In all cases our summary will be strictly impartial, and done solely with a view to increasing the value of the *American Agriculturist* to its readers.

Riding Harrow.—T. L. Cone, Brest, Missouri. Nov. 13; No. 289,232. The patented features of this harrow are, the rigidly connected tongue-rods, *h*, *h*, so attached to the two sections of the harrow by the swiveled clevis rods, *j*, *j*, as to prevent the tongue from interfering with the up and down movements of the ends



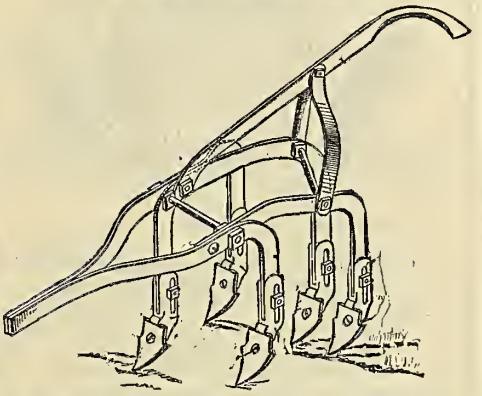
of the harrow; the uprights, *d*, *d*, and the swinging hangers of the seat board, and the levers, *g*, *g*, by which the driver may easily raise either end of the harrow to clear the teeth, or pass freely over stones and other low obstructions.

Seed Dropper.—Samuel Dement, Samuel D. Palmer, and John A. Palmer, East Lynn, Ill. Nov. 13; No. 288,317.—This improvement in seed droppers consists of certain peculiarities of construction, whereby the seed-slide is operated by a spring arm, adapted to give way and prevent breakage, should the slide become clogged. In operation the wheels are lowered till their points and markers enter the ground. When the machine is started, one of the dropping-arms, *b*, strikes the spring, *i*, and carries it forward, turning the arm, *d*, and, by its connections, carrying the dropping-slide to plant two hills of corn or other seed which may be contained in it. At the same time the marker-blade on the wheel marks the place of the hill, and as the machine passes on, one of the dropping-arms on the opposite wheel re-



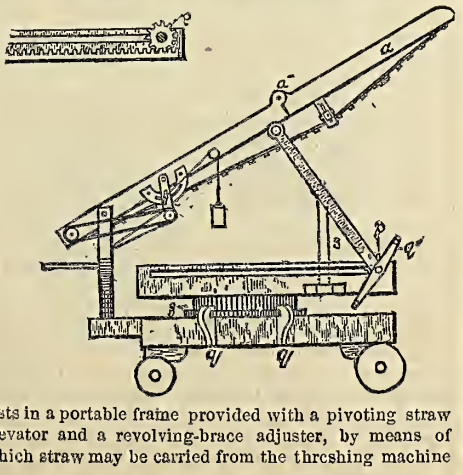
peats the movement, and another hill is planted as before. The marking points enable the operator to keep the rows straight, and the hills at equal distances apart. By using the spring-arm to move the slide, the slide is started slowly and without shocks, and in case of any binding of the slide, the spring-arm gives way, preventing breakage or undue strain on any part of the machinery. The general construction of the machine will be readily understood from the cut.

Cultivator.—J. H. Allen, Wenona, Ill., Nov. 13; No. 288,292.—This figure represents one gang of Mr.



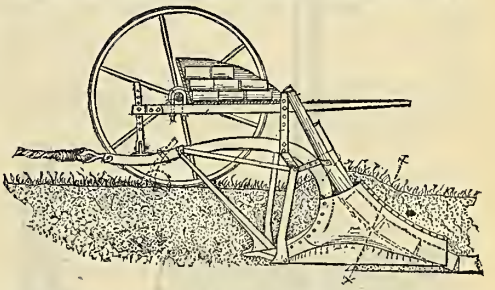
Allen's improved straddle row cultivator. In operation each half of the cultivator is attached to the running gear of any two-wheeled machine, so as to fall on opposite sides of a row of corn or other grain. It will be seen by the figure that no two plows run opposite each other, thus allowing weeds and like rubbish to escape between the plows without clogging the machine. The special advantages claimed are due to the use of beams of unequal length and curvature, and to the manner of attaching the plow feet to the shanks so as to make them adjustable.

Portable Straw-Stacker.—S. H. Garver, Decatur, Ill., Nov. 13; No. 288,224.—This invention con-



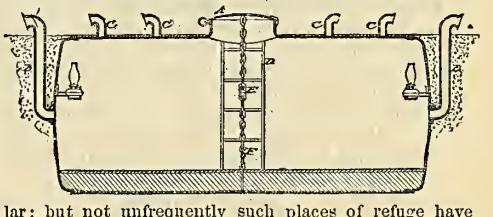
sists in a portable frame provided with a pivoting straw elevator and a revolving-brace adjuster, by means of which straw may be carried from the threshing machine at various angles, both vertical and lateral. The figure shows a side elevation of the stacker when in condition for use. By turning the lever, *q*, the pinions may be carried to the opposite end of the rack, when the frame, *a*, will rest on the support, *s*. A partial revolution of the drum, *z*, will change the lateral position of the straw discharge; or by changing the positions of the pinions, *p*, in the rack. The vertical position of the straw discharge may be varied.

Tile-Laying Plow.—Herbert King, Des Moines, Iowa. Nov. 13; No. 288,344. The object of this invention is to provide a strong and durable machine for laying drain-tiling underground, without opening a ditch, or



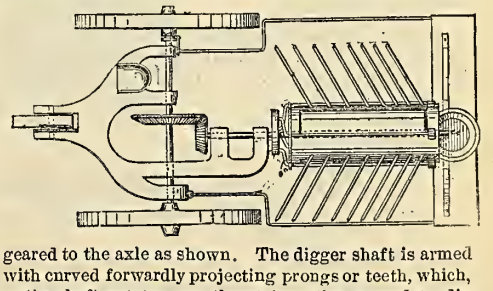
removing any soil. It is to be drawn by horses, and consists of three parts; first, a mole-plow, with two flat land sides, two duplex mould-boards, and three cutters arranged to cut two distinct furrow-slices, to lift them so as to admit the laying of tiling underneath, and then replace the soil as the machine advances; second, a subsoil attachment for making a concave furrow for round tiling; third, a carriage adapted to support the operator, carry tiles, govern the plow and regulate the depth of the drain. The general construction of the machine, and the way it works, are sufficiently shown by the engraving.

Cyclone-Refuge.—Joseph N. Mileham, Jersey City, N. J. Nov. 13, 1883; Letters Patent No. 288,354.—Dwellers in regions subject to tornadoes have learned the utility of under-ground resorts in such times of peril, when nothing above ground can withstand the terrible violence of the wind. Many have saved their lives when in the track of a whirlwind by promptly seeking the cel-



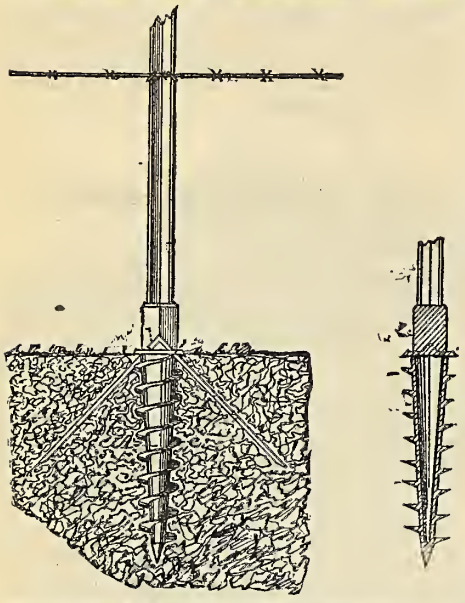
lar; but not unfrequently such places of refuge have proved unsafe, being uncovered and exposed to the fury of the storm by the removal of the house bodily, or made untenable by falling timbers. Mr. Mileham's invention is intended to provide a safer and more convenient refuge in such emergencies. It consists, as the illustration shows, of a metallic chamber, to be sunk in the ground, with proper openings for ingress and exit and for ventilation. A cylindrical form is preferred, and as the refuge is intended to be water proof as well as wind proof, the structure can be used as a cellar or storehouse in places exposed to floods. In the engraving, *A* is the door or cover to the man-hole, to be locked by the chain, *F*, which is tightened with the turn-buckle, *E*. The ventilators are marked *B* and *C*; the entrance ladder, *D*.

Potato Digger.—John Shannon, Wixom, Mich. Nov. 20; No. 288,875.—The figure shows a plan view of this potato digger and gatherer. The bearers of the bed-frame of the truck support a digger shaft, which is



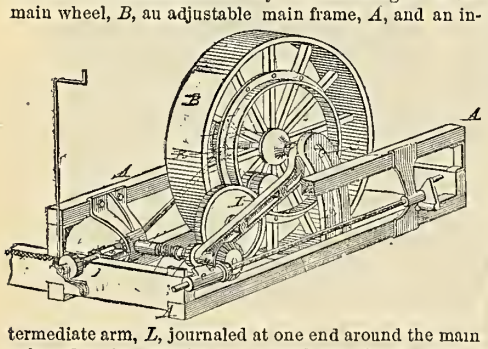
geared to the axle as shown. The digger shaft is armed with curved forwardly projecting prongs or teeth, which, as the shaft rotates, are thrust into the ground to dig up the potatoes. The potatoes roll down the teeth or prongs into the gathering tube, to be carried by a screw conveyor to a basket at the end. The teeth are closer set toward the rear, and at their base are doors to the gathering tube, which open for the potatoes, and are at once closed by suitable mechanism. The gatherer tube has holes for sifting out the dirt.

Metallic Fence Post.—D. R. Scott, Shingle Springs, Cal., Nov. 27; No. 289,149.—This patent covers an improved screw point and means of anchoring metallic fence posts, designed to prevent their yielding in hilly ground where the upward strain of the wires tends to pull them up. The special novelty of the point lies in the thread, which increases in width toward the end of the point, and is flat on the upper side. The widening



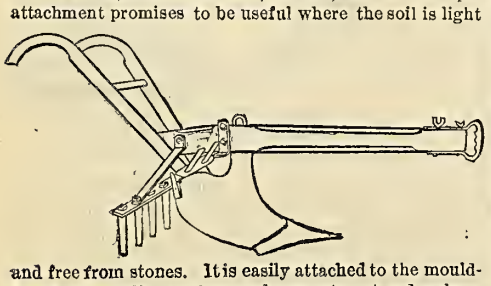
thread gives a better hold on the ground while it does not affect the entering capacity of the screw through the less compacted soil nearer the surface. The greater resistance of this form of thread is found especially advantageous on the Pacific Coast, where the ground is baked in summer and softened by the incessant winter rains. The character of the invention is clearly shown in the cut. The base-piece is cast on the wrought iron post. On level ground the anchor bars are not used.

Grain Harvesting Machine.—George Esterly, Whitewater, Wis., Nov. 20; No. 288,784. This invention has reference to that class of machines in which the main frame is adjustable vertically with reference to the main or ground wheel, from which motion is transmitted to the operative mechanism of the harvester and binder. It consists essentially in combining with the main wheel, *B*, an adjustable main frame, *A*, and an in-



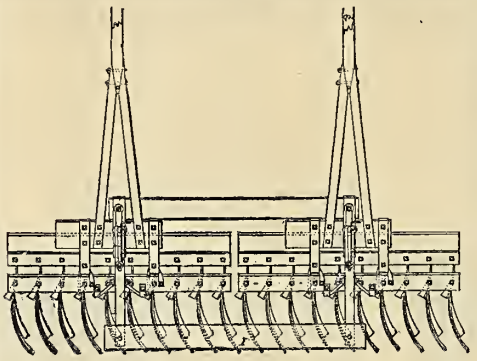
termediate arm, *L*, journaled at one end around the main axle and at the opposite end around the gear shaft, this bar having attachments for communicating motion from the main wheel to the gear shaft. There are also improvements claimed in the form and arrangement of rack plates and other gearing, by which the frame is allowed to rise and fall freely and any binding or cramping of the parts is prevented.

Plow Attachments.—Samuel B. Willams, Sailor's Rest, Tenn. Nov. 20; No. 288,904.—This simple attachment promises to be useful where the soil is light



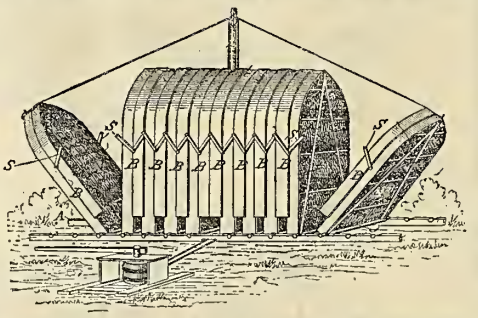
and free from stones. It is easily attached to the mould-board of an ordinary plow, and serves to cut and pulverize the earth as it leaves the plow, thus saving the labor of harrowing.

Agricultural Machine.—Fredcrick Nishwitz, Millington, N. J., Nov. 20; No. 288,657. This improvement lies in the method of coupling together two fully organized machines—seeders, harrowers, or the like—by pivotal connections or parallel coupling bars, which will permit each machine to move freely within certain limits, independently of the other. The figure



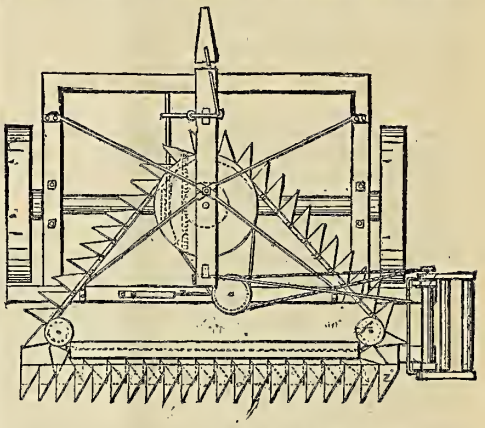
shows two harrows so joined. The object of this coupling of machines is to obviate the difficulties attending the use of extra width machines as employed in the West, where the need of economizing time and labor makes it desirable to treat as wide a swarth or strip of soil as possible in one traverse of the machine over the field. The coupling of two harrows or cultivators so as to allow limited motion forward and backward is not new, though Mr. Nishwitz's mode of doing it appears to be new.

Process and Device for Storing and Curing Grain, Hay, Etc.—Oscar W. Kendall, Olmstead, Ohio, Nov. 13; No. 288,243.—Mr. Kendall's object is threefold: to provide a process by which grain and forage crops generally may be cured in mass, and,



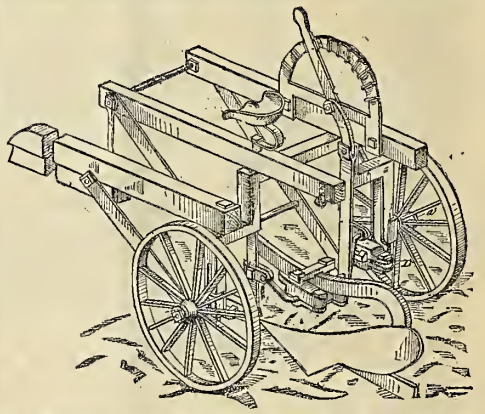
when cured, baled for transportation without rehandling with forks; to provide an inexpensive apparatus that may be readily set up in the field so as to avoid the loading and hauling of the materials in wagons until required for transportation; and to provide apparatus by which the material to be cured may be thrown open to the sun and covered again when desired without forking, thus affording not only facilities for stowing and curing such crops but storage as well. This method of treating forage crops is novel, and is designed to obviate the disadvantages attendant upon the curing of them in the cock or in winrows, especially in rainy weather, and also the risks attending the stowage of imperfectly cured materials in stacks or mows, owing to deficient ventilation on account of the packing of the materials. In the figure a curing stack of ten sections is shown, two of the sections being left partly raised to show the device in operation. The material to be cured is spread upon the lifting frames, *B*, and held in place by slats and pins, so that it cannot settle when the frame is raised. The jointed braces, *S*, allow the sections to be thrown over outwardly from the center post so as to let the sun in upon the material to be cured. The roof of each section is made of two boards on a side, permanently fastened together, one over the other, so as to batten the joint. The parts performing similar offices are interchangeable, and the whole may be readily disjointed for compact storage or transportation. In operating the device, the frames are set up in pairs on opposite sides of the center post. If the material is to be baled when dry, a suitable number of baling slats are put upon the frame; then the material is spread on in layers loosely enough to avoid risk of overheating; lastly the supporting rods are put on and secured, and the frame set up. From time to time the frames are lowered for the addition of fresh material until they are full enough. When the time for baling comes the supporting rods are removed and proper baling slats are set opposite those first placed. Wire bands bent hairpin fashion are then passed down through the layers so as to clasp the slats. Power is then applied, the frames raised, and the material compressed. In compressing the bands are forced through the layer to their utmost extent, when they are locked by twisting the free ends together. The slats are then sawed in proper lengths, and the material cut up, layer by layer, into suitable bales.

Grain Header.—John A. Rumril, Salina, Kansas. Nov. 27; No. 289,144.—Mr. Rumril claims an endless-chain sickle, the sections having cutting edges perpendicular to the line of travel along the guards, the sections being linked together suitably for running on a driving pully; also guides with suitable tightening devices for taking up the slack of the chain, together with



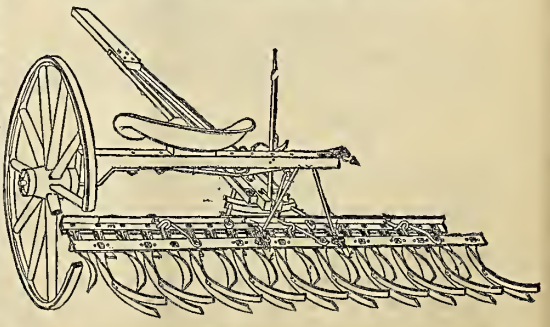
a contrivance for keeping the chain in its proper course, and means for operating the endless sickle; also an extension carrier for delivering the grain from the elevator to a wagon alongside the header. A plan view of the principal part of the header is shown in the figure.

Sulky Plow.—C. A. Kellogg, Columbus Grove, Ohio, Nov. 13; No. 288,341.—Mr. Kellogg claims a number of devices in the construction of sulky plows, by which the cost of such machines may be lessened, and the parts adjusted to allow the use of right or left-hand plows of any ordinary form. The figure shows the machine as adapted for use with three horses and a left-hand plow in breaking ground. A few easily made changes adapt the machine for corn-plowing. By means



of the hand lever and its attachments the driver can easily lift the plow for carriage or to avoid an obstruction.

Harrow.—Frederick Nishwitz, Millington, N. J. Nov. 20; No. 288,658.—In this invention Mr. Nishwitz has aimed to make sundry structural improvements in the sulky harrow patented by him Aug. 15, 1882. These improvements relate to the fixing of the driver's seat, the securing of the draft pole to the harrow instead of to the sulky frame, the connection of the pole with the



transverse gang-bars, the means of attaching the trailing teeth to the gang-bars, and in other details which need not be described here. By these improvements, it is claimed, a very efficient, strong, and easily handled machine is to be had, and one which may be quickly adjusted to suit all the varying conditions of the various soils.

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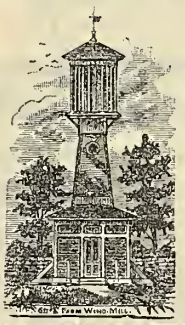
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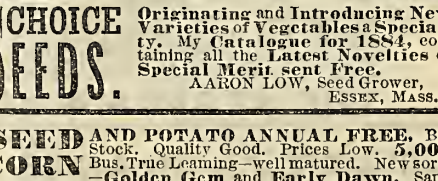
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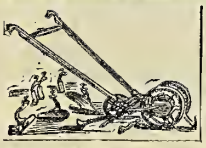
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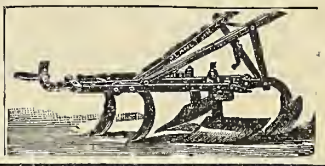
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1 Kieffer Hybrid Pear, 75c. 1 Leconte Pear, 75c. 5 Russian Mulberry, 50c. 1 Champion Quince, 50c. 30 Strawberry Plants (10 each of James Vick, Manchester and Jersey Queen,) 75c. 4 Hansell Raspberry, $1. 1 Fay's New Red Currant, 75c. 3 Grape Vines (1 Prentiss and 2 Delaware,) $1. The above 8 worth **$6, free by mail for $4.** Your choice of three for $2. We have a large stock of Fruit Trees, Grape Vines and Small Fruit Plants—choice new and old varieties—unsurpassed in quality and true to name. Over 100 $1 sets to select from in catalogue free to all. OAKLAND NURSERIES, BOWMAN & BRECKBILL, Forgy, Clark Co., O.

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OUR NEW DEPARTURE in the **Relief for the People.** **SEED TRADE**

NO BIG BROWN-STONE FRONT BETWEEN PRODUCER AND CONSUMER. NO FICTITIOUS VALUE. NO LIGHT WEIGHT. NONE BUT THE BEST.

In order to introduce our **new** and **improved seeds,** we make the following unprecedented offer: *17 packets,* containing over 8 ounces, including one large packet of **WELCOME OATS** by mail, postpaid, for *55 cents,* the regular retail price, being $1.55. On receipt of 55 cts. in postage stamps or money, we will send one p'kt each of the following new and improved seeds:—**Lazy Wives Beans,** acknowledged by all to be the best bean that grows. **Wilson's Improved Early Blood Turnip Beet. Early Oxheart Cabbage,** earliest and best for family use. **Early Green Cluster Cucumber,** good for pickles or cucumbers. **Early Montana Sugar Corn,** decidedly the earliest and sweetest sugar corn in the world. **New Perpetual Lettuce,** tender and crisp from spring until fall. **Scaly Bark Watermelon,** entirely new; large as the Cuban Queen; better quality; keeps good until Christmas. **Honey Dew Green Citron,** a native of the Sandwich Islands; the sweetest and finest-flavored musk melon in the world. **New Italian Onion,** mild flavor, grows from seed to weigh 3 pounds. **Improved Sugar Parsnip. Golden Dawn Mango,** large, entirely sweet; most beautiful pepper ever seen. **Improved Early Long Scarlet Radish. Perfect Gem Squash,** excellent flavor, good for summer or winter use. **Livingston's New Favorite Tomato,** the largest, earliest, smoothest, most solid, and finest-flavored tomato ever introduced. **Early Strap-Leaf Turnip.** Sample packet of the **True Leaming Corn,** and a **two-ounce** packet of **GENUINE WELCOME OATS,** which sold last season for **25 cents** a packet; and **from one 2-ounce packet were grown 473 pounds of fine oats, and from one single grain 70 large, full-headed stalks. IN ALL 17 PACKETS FOR 55 CENTS, OR TWO COLLECTIONS FOR $1.00.**

A PROPOSITION. To gladden the heart and brighten the way of every tiller of the soil and lover of the beautiful. *12 packets of choice flower seeds for 30 cents,* consisting of **Asters,** fine, mixed. **Balsams,** large double, mixed. **Mignonette,** new Golden Queen. **Hollyhock,** large double English. **Pansies,** finest strain. **Petunias,** fine, mixed. **Portulacca. Phlox Drumundii,** all bright colors. **Sweet Williams,** mixed, double. **Verbenas,** 12 choice colors. **New Ivy Leaf Cypress Vine, Zinnias,** extra large, double, finest bright colors, in all **12 p'kts for 30 cts.,** or two collections for **50 cts.** Our Illustrated and Descriptive Catalogue accompanies each order. Address **SAMUEL WILSON,** Seed Grower, **Mechanicsville, Bucks Co., Pa.**

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TYLER The earliest and greatest bearer of all Black Raspberries. Send postal.
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SOWS CLOVER, TIMOTHY, MILLET, HUNGARIAN, RED TOP & FLAX.
SEND FOR CIRCULARS
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O. E. THOMPSON, SOLE M'F'R.
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The best improvement ever made in Hand Planters. They are warranted, and satisfaction guaranteed. Circulars and terms to Agents free. **WALLACE FISK,** South Byron, Genesee Co., N. Y.

PEARCE'S IMPROVED CAHOON BROADCAST SEED SOWER.



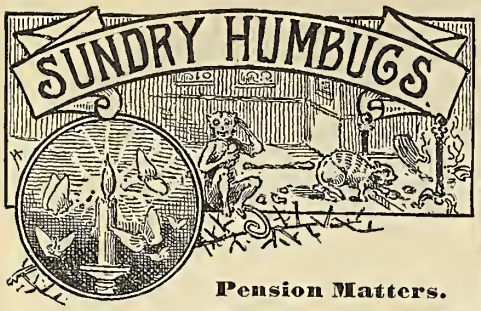
This Machine sows wheat two rods wide, so that a man walking one mile sows 4 acres, and does the work better than can be done by any other means whatever. It sows grass seed and all kinds of grain. Price $6. We have agents in all parts of the country. Send stamp for circular.
GOODELL COMPANY, Antrim, N. H., Manuf's.

BARGAINS in Presses, Type, etc. Send stamp for catalogue. Elegant set of chromo cards, 6c. 50 of the Finest designs, 25c. C. F. GITHENS, Box 74, Phila., Pa.

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for the AMERICAN AGRICULTURIST, English and German. For splendid inducements address immediately ORANGE JUDD CO., Publishers, 751 Broadway, New York.



Pension Matters.

"A. N.," Arkansas Co., Ark., writes us that three years ago he was examined for an "increase of pension," which was allowed him. Since then he has written to Washington many times, and paid numerous attorney's fees; as he gets no pension or reply, he comes to us for advice. The best thing for him to do is, to write out a plain statement of his case, giving names and dates, and send it to the member of Congress who represents his district, asking him to look up the case, and advise him how he can get the money that is due him.

"Chesapeake Bay Dogs."

The Chesapeake Dogs, long celebrated for their value in hunting water fowl, and for great endurance, are now very scarce. A correspondent writes us that he has been offered one for five dollars. Our advice is, don't buy, as it can not be pure-bred. One of the officers of this Company had a dog of this rare and valuable breed, which the above price with two ciphers added could not purchase.

Wanted, a Young Man.

One of the meanest swindles is to advertise for a young man with a sum of money. Sometimes this is as small as twenty-five or fifty dollars, or it may be that two or three hundred is named. The young man is promised a good salary, and he unsuspectingly loans his employer the money. An excuse is soon found to discharge the young man and the game is repeated with another.

Hog Cholera—"A Sure Cure."

"W. H. S.," Dayton, O., writes us that a man in Indianapolis, Ind., "is taking in unsuspecting country people," with a "sure cure" for hog cholera, and asks us "to warn our subscribers against the fellow." If our friend had sent us a circular or advertisement of the stuff, we might have been able to judge of it, and to issue the desired warning, but when we are given only the name and residence of the fellow, we are unable to "do the public a service." Send us the documents.

Grain and Cattle Enterprises.

Very flattering promises are made by parties who propose to carry on cattle raising and speculation in grain in the far West. Some of these propose dividends as large as five per cent. per month. Several have asked our opinion of these schemes. We would not advise any one to invest in such enterprises; they are carried on at a very long distance off, and managed by strangers; safe investments can be found nearer home.

The Counterfeit Money Swindle.

Now if there is any one form of swindling that we have shown up in all its phases, all its ins and outs, for the last twenty years, it is this. Yet here is a subscriber in Iowa, to whom the matter is entirely new, who, evidently not having heard of it, naively writes: "These parties ought to be published." We need only say now, that these circulars do not appeal to honest men. Our correspondent speaks of "these parties," signers of the circulars, evidently not knowing that they have a vast number of aliases. We have known as many as twenty different names used for the same circular.

"I Think It Is a Humbug,"

Writes Mr. D. Stout, who in renewing his subscription forwards us several advertisements of a New York firm. One of these announcements states, "You can now grasp a fortune," illustrated by a cut of an open hand loaded with coin, and not grasping at all. The reader is told: "If you return this slip with twenty five cents, either in currency or postage stamps, we will send you a package of splendid articles worth a great many times twenty-five cents, **and which we know** will enable you to **grasp a fortune** and earn from seventy-five to two hundred dollars per month, rain or shine, all the year round, honorably and easy."—As we infer, something is promised for the twenty-five cents, which will enable the receiver by selling it, or otherwise, to make the sums named. If any such profits are to be realized from a twenty-five cent investment we would suggest to the advertising firm to "grasp a fortune" itself, it would pay better than to sell the chances for "grasping" at twenty-five cents each. This is a trade, as the boys say, "on sight unseen." The only definite statement is that twenty-five cents is to be paid. After that one "grasps" his "fortune," whatever that may be. If this is not a lottery it would seem to be sufficiently a game of chance for the attention of the Postal authorities.

Book-keeping for Fifteen Dollars.

Announcements are often made that book-keeping will be taught for fifteen dollars, or some such sum. Many young men, especially those in the country, are under the impression that there is always a demand for book-keepers, and that by expending a few dollars they can fit themselves to occupy a place with a good salary. In New York, and no doubt other large cities, there are hundreds of young men who have come in the hope of finding a place as book-keeper and having expended all their means are not able to get away. Some of these are driven to theft, and not rarely a suicide ends the miserable waiting. A friend of ours needing a book-keeper advertised for one, not long ago, and the next day received over five hundred answers. The demand for book-keepers is far less than the supply. It is a mistake to think that more book-keepers are wanted than cities can furnish.

A Wonderful Plum.

J. E. Pratt, Solana Co., Cal., writes us: "I send you a circular not exactly of a 'Blue Rose,' but of a Plum that is, to say the least, wonderful."—The circular announces that the signer will have for sale one hundred thousand African plum and prune plants from Cape Town. These remarkable plants were discovered in a journey to the diamond fields in 1875. They are bushes about five feet high, can be planted close together "and each one will bear a gallon of fruit." That there may be a South African bush with an edible plum-like fruit, is quite likely. That it is really a plum is doubtful. When it is stated that the plants bear "the most beautiful round, thin-skinned and pale-red, delicious fruit that man ever saw or tasted, each plum being as large as the average French or German prune, with the tiniest little freestone, not larger than a grain of white corn," we take it with a grain of allowance. We have had some experience in desert countries, and know how easy it is to regard a fruit that can be eaten at all, as the most delicious ever tasted. The importer shows much enterprise in procuring the plants which he offers, but his description is no doubt overdrawn; still the fruit may be worth trying.

His Father's Corpse.

A well-to-do farmer, while waiting for the train at a depot in Pittsburgh the other day, was accosted by a stranger who was also waiting. The stranger was a glib talker, and the farmer being rather lonely, was glad to meet him. As they were talking, a couple of men in railroad uniform came up and asked the stranger to pay the charges as the train would soon be off. The other did not think he must pay in advance, and had not near enough money to pay the one hundred and twenty-five dollars demanded, "Well," said the others, "corpses always pay in advance, if you can't pay, the corpse can't go." The son of the corpse explained to the farmer that he was taking his father's body home for burial, the funeral had been appointed, and unless the body could go upon that train the services must be postponed. He had a check for six hundred dollars on the bank at N., the place of his destination, but this the railroad men refused to take. At last he appealed to the farmer to loan the sum to pay the charges, and as they were both going to N., he would get his check cashed, and make all right. The good-natured farmer advanced the money, for which the bereaved son was duly grateful, and insisted that the other should hold the check as collateral security. They both boarded a car, but the train had hardly left the suburbs of the city before the young man found it necessary to go to the baggage car to see if the corpse was all right, but failed to return. Before the farmer reached home he learnt ed that there was no corpse on the train, that the son was not to be found, and it slowly came to him that he had been swindled by his new acquaintance. The farmer had inadvertently mentioned his destination, and the other took advantage of the information. Of course the other men were confederates, and were not employees of the road. Be cautious in making acquaintances in travelling.

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751 BROADWAY, NEW YORK.

Sample Testimonials Regarding Our Premium Guns.—(*See page 87.*)

MANCHESTER, MICH., Jan. 4, 1884.

Orange Judd Company—DEAR SIRS:—The Gun (Handy) you sent me I have received in good order and am well pleased with it.

Yours, HENRY SCHULTE.

EQUAL TO A $75.00 GUN.

DANBURY, CONN., December 26, 1883.

Orange Judd Co.—DEAR SIRS:—The W. Scott Gun came to hand all right, and on trial I find it to be a strong shooter. One of my neighbors has a $75.00 Parker Gun, but he can not beat this W. Scott at shooting. Yours truly, S. J. SHERMAN.

ENTIRELY SATISFACTORY.

DARLINGTON, PA., Dec. 22, 1883.

Orange Judd Company—DEAR SIRS:—I received the Handy Gun, and it has proved entirely satisfactory. Respectfully, JOSEPH BIGGERSTAEF.

ST. CLAIRSVILLE, OHIO, Dec. 18, 1883.

Orange Judd Company—DEAR SIRS:—Gun (Handy) received and tested. Like it very well. Can kill rabbits on the skip, etc. Yours respectfully,

H. DENHAM.

VERY HANDSOME AND GOOD EXECUTION.

MUNCY, PA., December 4, 1883.

range Judd Company:—The W Scott Gun arrived on Saturday, and I tested it yesterday. It is a very handsome Gun, and its execution is good. I am well satisfied. Yours respectfully,

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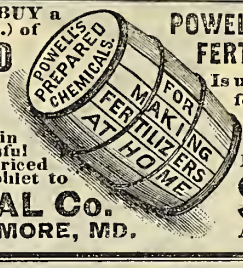
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This when mixed at home makes a ton of Superior Phosphate, equal in plant-life and as certain of successful crop production as many high-priced Phosphates. ☞ Write for pamphlet to

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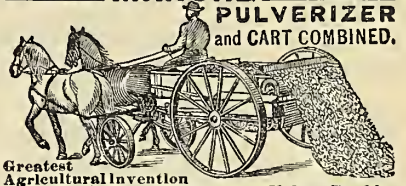
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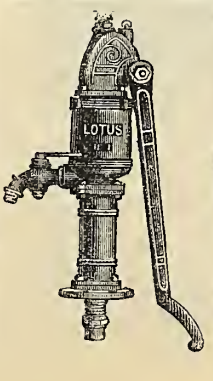
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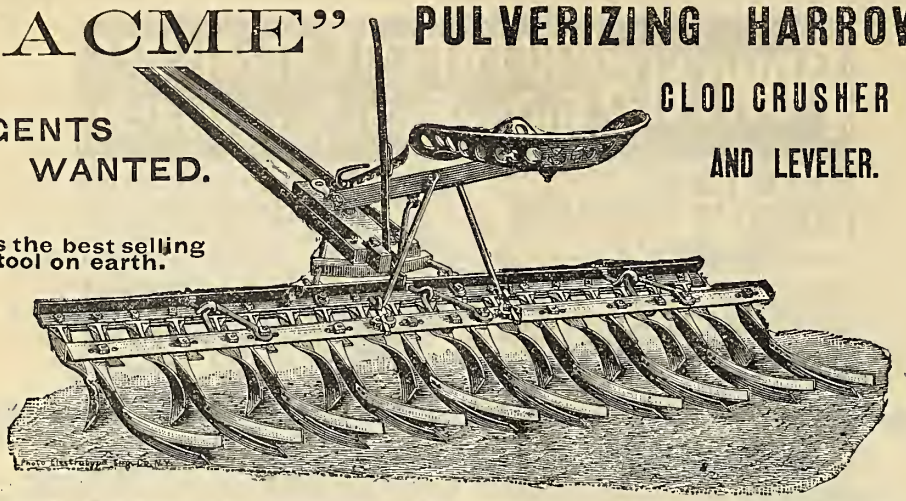
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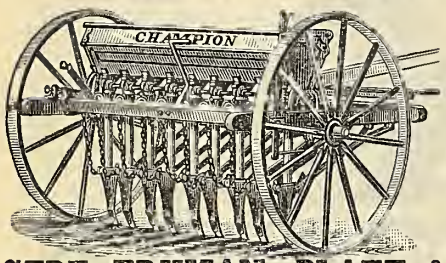
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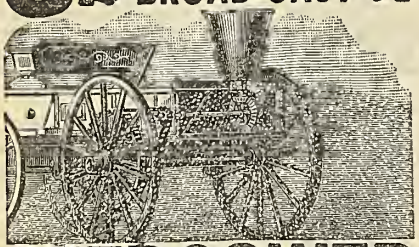
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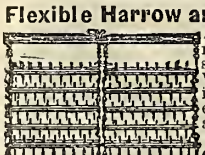
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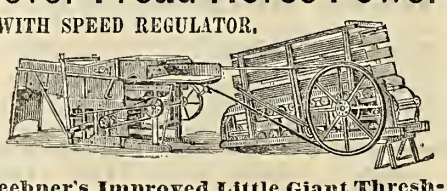
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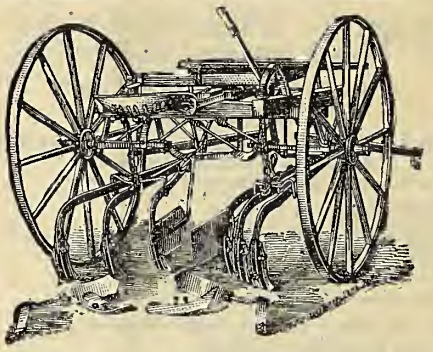
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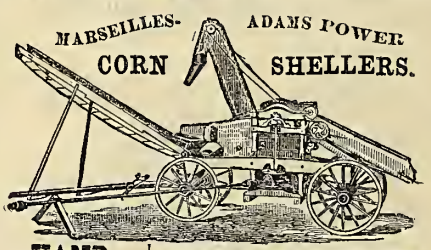
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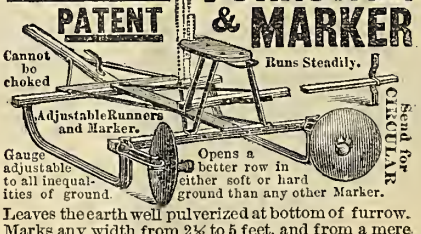


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504	Ave Sanctissima	Old Song	20
600	But the Lord is Mindful of His Own	Mendelssohn	30
505	Christmas Hymn	Holloway	20
217	Cleansing Fires	Virginia Gabriel	40
218	Father of Mercies	Barringer	25
219	Forsake Me Not	Glover	30
610	He Giveth His Beloved Sleep	Abt	30
506	In Heaven, O Jehovah, is fixed Thy Throne, Christians' Prayer	Spohr	50
507	I sought the Lord and He heard me	Costa	50
508	I think of Thee / Star of the East (Duett)	Redhead / Scoteh	20
504	'Tis Nightfall on the Sea	——	20
509	Jernsalem the Golden	Old Popular Tune	20
510	The Lord is my Shepherd (Quartette)	Martin	35
220	Let Music break on this Glad Morn—Christmas Carol		25
221	Lord, be with Me in My Walks	Schroeder	30
222	Nearer, My God, to Thee	Barten	50
511	O Clothe Our Valleys with Ripening Corn	Spohr	40
513	O Let Those Whose Sorrow	Wilson	20
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225	The Palms (Les Remeaux)	Faure	40
223	Rest in Jesus	Hymn	20
224	Saviour, Breathe an Evening Blessing	Spencer	25
508	Star of the East	Scotch	20
226	To Jesus Our Exalted God	Braun	35
227	When I View the Mother Holding	Saered	30

Duetts.

493	All's Well	Braham	30
640	Come When the Soft Twilight Falls	Schumann	35
230	Dost Thou Love Me, Sister Ruth ?	Parry	25
231	Emblem of Constancy (duet)	Turney	30
232	Ever, Ever Thine (duet)	Braun	50
233	Gobble Duet (from Maseotte)	Andran	40
495	Has Sorrow Thy Young Days Shaded	Tom Moore	15
234	Hunting Tower (duet)	Demar	40
236	I Would That My Love (duet)	Mendelssohn	35
237	In the Starlight (duet)	Glover	40
494	Larboard Watch	Williams	40
496	Over the Mountain	Holloway	10
238	Wandering in the May-Time (duet)	Glover	60
641	What Are the Wild Waves Saying	Glover	50
239	When I Behold Thee (duet from Mascotte)	Andran	40
234	When Ye Gang Awa, Jamie (duet)	Demar	40

Quartettes and Choruses.

228	Bridal Chorus (from Lohengrin) (quartette)	Wagner	25
229	Coast is Clear (quartette)	Meyerbeer	50
497	Farewell	German Volkslied	10
235	Hymn of Columbia (National Hymn)	Dodworth	30

499 Silent Night (4-part song)..... Barnby 30
500 Sleep my Child (Male Voices)..... Heins 30

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Waltzes.

241 Æsthetic..... Rivière 75
264 Bacio (Kiss), Arditi..... Arr. by Lanner 25
739 Bartholdi Monument..... Milford 40
244 Bella..... Lamothe 40
266 Black Hawk..... Walsh 35
642 Blue Violet..... Turner 35
245 Boccaccio..... Strauss 25
246 Breezes of the Night..... Lamothe 40
247 Charming..... Waldteufel 75
268 Chimes of Normandy..... Freeman 25
269 Chop Sticks..... De Lulli 25
643 Corn Flower..... Cooke 50
271 Dawn..... Lonel 35
644 Dolores..... Waldteufel 60
645 Dreamland..... Batho 60
248 Ever or Never..... Waldteufel 75
249 First Kiss..... Lamothe 40
250 Flowers of St. Petersburgh..... Resch 40
273 Frolic of the Frogs..... Watson 35
274 Gertrude's Dream..... Beethoven 35
275 Guards..... Cull 25
253 Illusioni..... Capitani 25
532 Isabelle..... Stewart 50
646 Iolanthe..... Milford 35
534 Mrs. Langtry's..... G. Operti 50
278 Mabel..... Cull 25
648 Manola..... Waldteufel 75
254 Mascotte..... Audran 40
649 Merry War..... Strauss 75
650 Modjeska..... Lowthian 50
651 Mon Rêve..... Waldteufel 75
280 Mollie's Dream..... Reissiger 25
736 My Queen..... Coote 60
652 Olivette..... Gautier 35
653 Patti..... Milford 50
281 Patience..... Milford 25
282 Pearls and Laces..... Ludovic 25
283 Pinafore..... Freeman 25
255 Pleasures of Summer..... Jones 40
257 Queen's Lace Handkerchief..... Strauss 40
256 Racquet..... Jones 40
284 Rigoletto..... Verdi 25
257 Roses from the South..... Strauss 40
533 Royal..... W. F., Jr. 40
258 Sirenes..... Waldteufel 75
259 Snow Drift..... Shirk 40
769 Under the Elms..... Malley 40
262 Violettes..... Waldteufel 30
285 Whoa Emma..... Freeman 25
251 Woman's Love..... Fahrbach 40
288 You and I..... Arr. by Thomas 25

Lanciers and Quadrilles.

289 Agnes Sorel Quadrille..... Leduc 50
788 Beggar Student Lanciers..... Milford 50
654 Iolanthe Lanciers..... Milford 50
656 Mascotte Quadrilles..... Metra 50
290 New York Lanciers..... Freeman 50
291 Olivette Lanciers..... Prince Tom 50
292 Patience Lanciers..... D'Albert 40
293 Pirates of Penzance Lanciers..... D'Albert 50
775 Prince Methusalem..... Milford 50
535 Rip Van Winkle..... Milford 40

Polkas and Mazourkas.

294 Adelaide Polka Mazurka..... Gobbaerts 30
295 Beautiful Eyes Polka..... Dorn 25
297 Children's Carnival Polka..... Streabbog 25
298 Crimson Blushes Mazurka..... Conway 40
301 Golden Robin Polka..... Bousquert 35
303 Pearly Dew Drop Mazurka..... Birbeck 40
305 Society Polka..... Evans 35
306 Three Bells Polka..... Cook 40

Galops.

740 Dudes (The)..... Simons 40
308 El Fresco (companion to the Racquet)... Garland 40
310 Helter Skelter..... Faust 35
770 Hurricane..... Hadden 40
311 Jolly Brothers..... Budik 35
670 Newport..... Turner 40
312 Oscar Wilde..... Snow 40
313 Patience..... Milford 30
671 Paul and Virginia..... D'Albert 20
314 Queen of the Fairies..... Smith 40
317 Tont a la Joie..... Fahrbach 35
318 Waves of the Ocean..... Blake 50

Marches and Quicksteps.

321 Aida March (Verdi)..... Richards 25
322 Bavarian March..... Mayer 35
323 Boccaccio March..... Suppé 40
737 Brooklyn Bridge March..... King 30
659 Devil's March..... Suppé 35
327 Donna Juanita..... Suppé 40
330 Fatinitza March..... Suppé 35
331 Funeral March..... Chopin 35
332 Garfield's Funeral March..... Gilmore 40
333 Genevieve March (Offenbach)..... Cull 25
334 Grand Review..... Silverberg 35
335 Grant's March..... Marks 40
660 Good Luck March..... Faust 30
790 Henry Irving March..... Cox 40
339 Jumbo March..... Marks 40
340 Knickerbocker Quickstep..... Kramer 35
342 Longfellow's Funeral March..... Chopin 40
344 Mascotte March..... Andran 40
346 Nancy Lee March (Adams)..... Freeman 25
531 Norma March..... Burgmuller 35
347 Petit Duc March (Lecocq)..... Freeman 25
349 President Arthur's Grand March..... Carlberg 40
350 Russian March..... Francis 25
537 School March (splendid march time)... Schroeder 10
351 Seventh Regiment March..... Veaszic 40
352 Smith's (General Persifer F.) March..... Martin 35
780 Southern Exposition March..... King 30
353 Swedish Wedding March..... Soderman 30
355 Triumphal March (from Michael Strogoff).. Artus 35
356 Twenty-second Regiment March... Helmsmuller 40
663 Wagner's Funeral March..... Gilmore 40
359 Warriors March..... Drake 40
360 Waves of the Ocean March..... Blake 50
361 Wedding March..... Mendelssohn 40
363 Wood Up Quickstep..... Holloway 25

Rondos, Variations, Fantasies, Idylles, Nocturnes, etc.

454 L'Africaine (Marche Indienne)..... Richards 75
514 Amaryllis (Air de Louis XIII.)..... Ghys 10
536 Album Leaves..... Levett 20
672 Anvil Chorus..... Oesten 40
450 Billee Taylor..... Prince Tom 100
680 Bells of the Convent..... Ludovic 30
789 Beggar Student Potpourri..... Milford 75
681 Blue Bells of Scotland..... Kuhe 40
369 Blumenlied (Lange)..... Richards 25
371 Chant du Cigne (Song of the Swan)... Blumenthal 40
374 Chase (the) (Die Jagd)..... Rheinberger 40
451 Claude Duval..... Milford 100
685 Chant de Berger..... Colas 35
686 Consolation..... Liszt 30
538 Country Dances (Four Selected)..... 10
687 Dashing Sleigh Bells..... Corticelli 30
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379 Everybody's Darling (Gavotte)..... Eilenberg 40
380 Far Away (Remember Me)..... Brinkman 35
453 Faust (Improvisation)..... Hunten 100
673 Fra Diavolo (Selection)..... Krug 40
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390 Last Idea (arr. Richards)..... Weber 25
699 Last Rose of Summer..... Herz 40
700 Lilian (Melodie)..... Favarger 30
439 Longing..... Mayer 25
395 Love Reverie..... Jungman 40
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703 Maid of the Highlands (op. 262)..... Lange 30
396 Maiden's Prayer..... Badarzewska 30
397 Manetta (Smiles and Tears)..... Halliburton 25
398 Marquis et Marquise (Gavotte)..... Morley 35
455 Mascotte Potpourri..... Audran 100
399 Monastery Bells..... Wely 50
704 Mountain Stream..... Smith 75
441 Moments Musicale..... Schubert 35
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458 Pirates of Penzance Potpourri..... Raymond 100
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404 Pure as Snow (Edelweis)..... Lange 50
706 Remembrance..... Forbes 30
735 Rhapsodie Hongroise, No. 2 (Liszt)..... Maylath 75
541 Russian National Hymn..... Arr. by Holloway 10
406 Sea Shore Dreams..... Wolff 30
407 Secret Love (Gavotte)..... Resch 40
408 Serenade (Schubert)..... Krug 35
520 Serenade..... Veaszie 25
409 Shepherd Boy (Idylle)..... Wilson 40
521 Silvery Waves..... Wyman 75
707 Song of Marguerite..... Ludovic 30
708 Song of the North..... Lange 30
717 Tempest of the Heart..... Verdi 30
412 Tendresse (Morceau de Salon)..... Pacher 50
413 Tidal Waves..... Conway 40
460 Toreador's Song (from Carmen)..... Bizet 30
447 Traumerei and Romance..... Schumann 35
528 Trovatore (Mal Raggendo)..... Verdi 35
530 Trovatore (Fantasic)..... Smith 50
414 Turkish Patrol..... Michaelis 40
415 Twickenham Ferry..... Kuhe 50
416 Un Souvenir..... Ludovic 30
520 Vesper Bell..... Lichner 25
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677 Don Giovanni..... Mozart 25
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523 Pirates of Penzance March..... Sullivan 25
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411 Star Spangled Banner..... National 25
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316 Secret Love Galop..... Resch 25
354 Tannhauser March..... Wagner 25
429 Tired..... Lindsay 25
677 Traviata..... Verdi 25
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526 You and I..... Claribel 25
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440 March of the Wooden Soldiers... Teschaikowsky 20
441 Moments Musicale..... Schubert 35
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443 Pastoral Movement..... Schneider; Andantino..... Hesse — 25
444 Prelude..... Freyer; Theme..... Hesse — 25
445 Pleasures of May..... Hiller 35
446 Pilgrim's Chorus from Tannhauser..... Wagner 35
735 Rhapsodie Hongroise No. 2 (Liszt)..... Maylath 75
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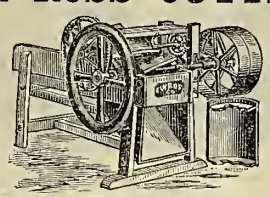
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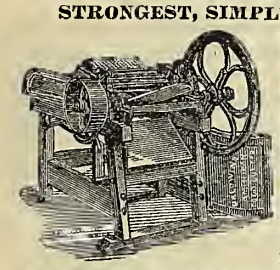
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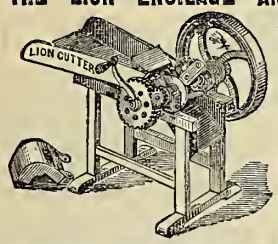
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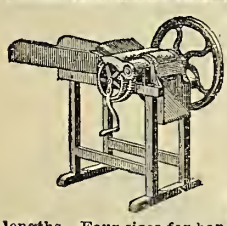
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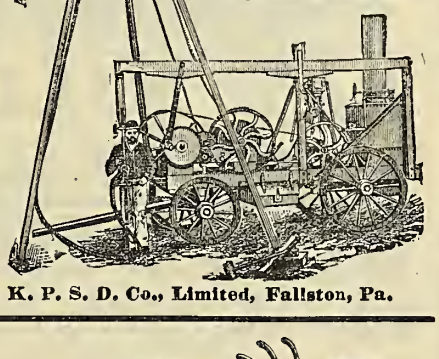
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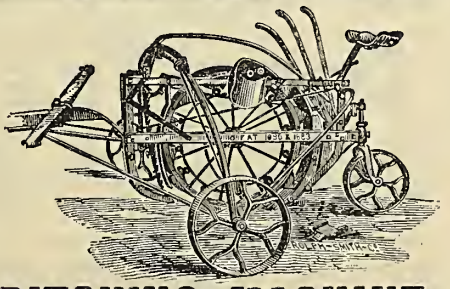
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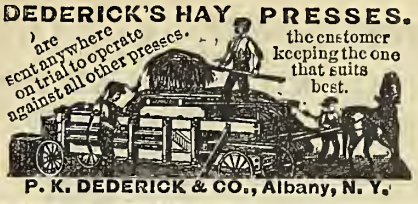
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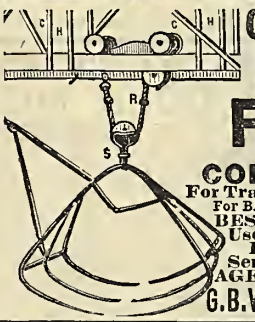
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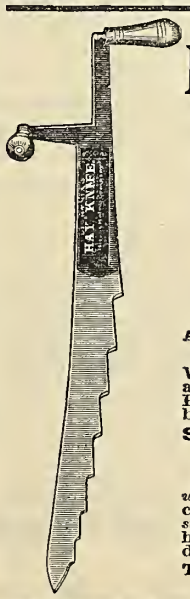
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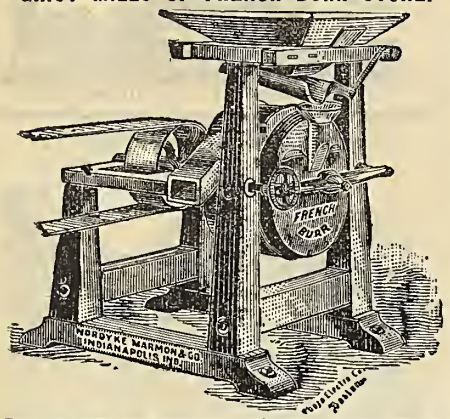
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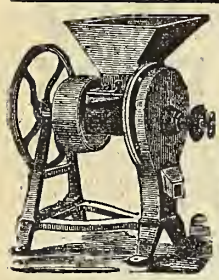
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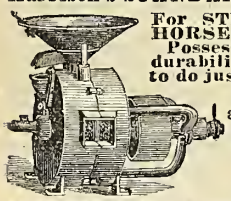
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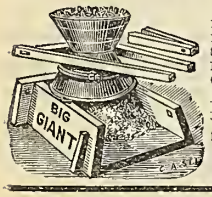
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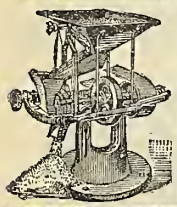
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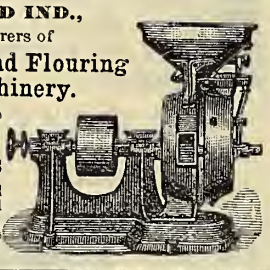
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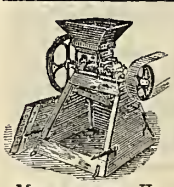
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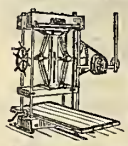
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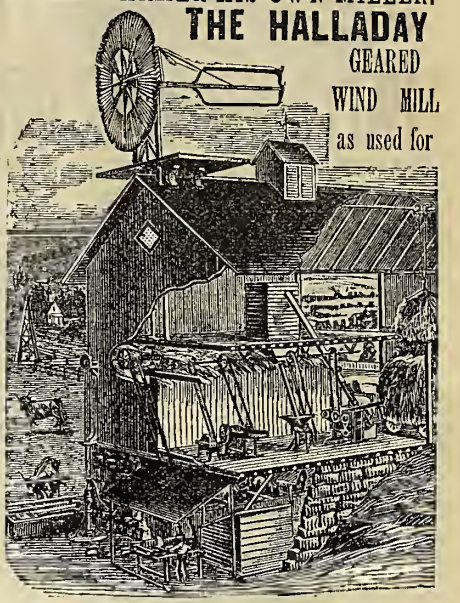


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Send for Catalogue illustrating the above machinery; also Pumping Wind Mills, Pumps, Tanks, Noyes Haying Tools, Horse Powers, Jacks, &c. Reliable Agents wanted in all unassigned counties.

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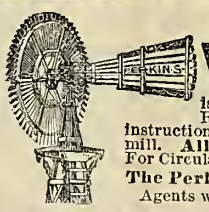
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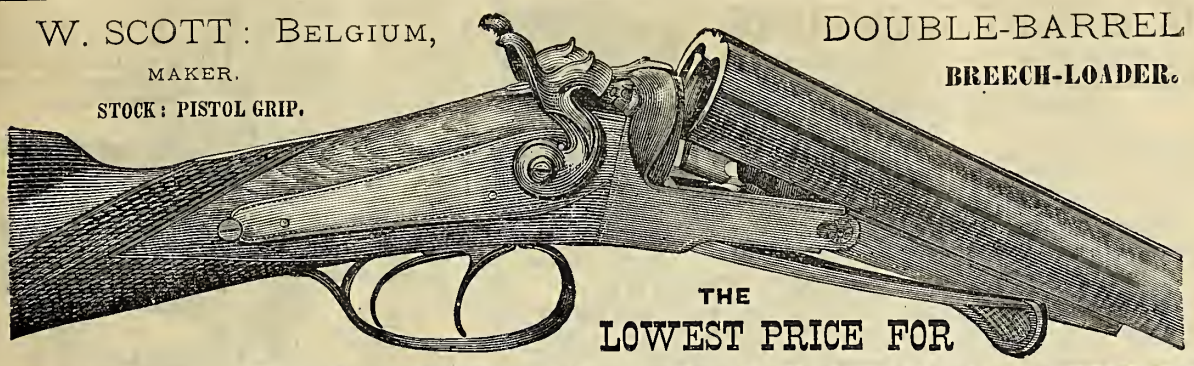
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The Publishers of the **AMERICAN AGRICULTURIST** have the pleasure of announcing to their subscribers, that by special arrangement they have secured a great desideratum—a very excellent Double Barrel, Breech-Loading Shot Gun, one that will do **GOOD WORK,** which they can supply at less than **HALF** the **PRICE** usually asked for guns of equally good quality and make. Aside from all hunting and sporting purposes, **A GUN IS NEEDED ON EVERY FARM,** to exterminate pests.

TO AVOID DELAYS a breech-loader is to be preferred by far, as there is no ramming of ammunition; the cartridges are easily and quickly removed always before taking it into the house or into a wagon, or setting it away. The cartridges can thus be kept safely, yet be instantly got out and inserted in the gun when needed—no hunting up powder, shot, wads, caps, etc. The breech-loader **IS EASILY CLEANED AND KEPT CLEAN;** does not get worn at the muzzle (which gives final direction to the charge) by the ramrod. No ramrod is used.—**FURTHER,** one can keep cartridges loaded with various sizes of shot, and at any moment insert the kind required.

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By special arrangement a gun possessing **ALL THE GOOD QUALITIES** for a Farm Gun and quite well adapted to hunting has now been secured, and **AT A VERY LOW COST.**

Before deciding upon its merits we submitted some of these guns to **A THOROUGH, CAREFUL TESTING,** shot for shot along with other superior guns (one of them a $250 shot gun from London.) These trials were in every way careful (see specimen targets and notes under) in the presence of one of our editors, who is well acquainted with the theory and principles of gunnery, and **THE RESULTS WERE MOST GRATIFYING.**

The Barrels of this Gun are of **FINE LAMINATED STEEL** thoroughly tested and finely finished; the action is the **RELIABLE, SAFE AND DURABLE** Lefaucheaux Lever Action, that for strength **IS INCOMPARABLY SUPERIOR** to any side lever action now made, and it will outwear a dozen side levers; this Gun has Steel Freed Locks, the stock is solid walnut, oil finished, and full checked; and we can supply either 10 or 12 bores, 30 or 32-inch barrels, and weighs from 8 to 9½ pounds.

This Gun we will supply to the readers of this journal for the low price of $19.00—not half the usual cost of equally serviceable guns.

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The guns every way. **"HANDY GUN,"** (shown below) is one of the most perfectly made single barrel shot gun (for powder) ever produced—in metal, quality of barrel and lock, stock—**EVERY WAY.** The barrel (which was tested for strength by powerful charges of powder) is **TRUE IN BORE** throughout to the thousandth part of a hair, and will shoot round balls very accurately. Its calibre, No. 17, adapts it to small loads, 2 to 2½ measured drachms of powder, and ⅔ to ⅞ oz. shot, and owing to its true bore it throws the shot well massed (see target). In the trials referred to elsewhere, witnessed by one of the editors of this journal, it made just as good targets as $40 to $250 guns, used with it for comparison.

EXPLANATORY NOTE.—These guns were made under the direct supervision of the United States Government, and subjected to the **MOST THOROUGH TESTS** and careful inspection in every particular. They were the last made before changing to rifled barrels, and have never been used, but are new and **IN ABSOLUTELY PERFECT CONDITION** as shown by the Government inspector's marks. It cost over $20 each to produce them.

For **FARMERS, FARMERS' BOYS** and others who wish a good reliable gun—for hawks, rabbits, etc., for protection, etc., etc., this is **JUST THE GUN. IT COSTS BUT A TRIFLE.**

The barrel is of solid steel of the finest quality, and is 32 inches long; the lock is of same material, is very perfect, strong, and durable; and the stock is of American walnut, oiled.

As to shooting: the Targets herewith shown speak for themselves. They were made off-hand at 30 yards, the charges consisting of 2½ drachms powder, 1 oz. shot, using Eley's wads for both.

☞ This Gun we will supply to readers of the *American Agriculturist* for $6; or, we will **PRESENT** one to any person who will send 7 subscriptions to the *American Agriculturist* at $1.50 each.

Express prepaid on either gun to any point east of the Mississippi River, when $1.00 extra is sent us.



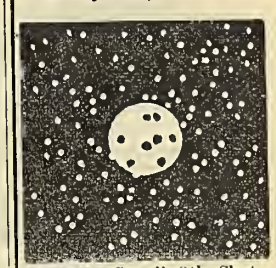
W. Scott Gun, Right Barrel.



W. Scott Gun, Left Barrel.



"Handy Gun," 3rd Shot.



"Handy Gun," 8th Shot.

[REDUCED FACSIMILES.]

FAIR SPECIMENS OF MANY TARGETS,

(15 *inches square,*)

In thorough Trials of these Guns,

MADE BY

MILO SEAGEARS, Esq.,

at Florida, Orange Co., N. Y., in November, 1883.

DISTANCE, 30 YARDS,

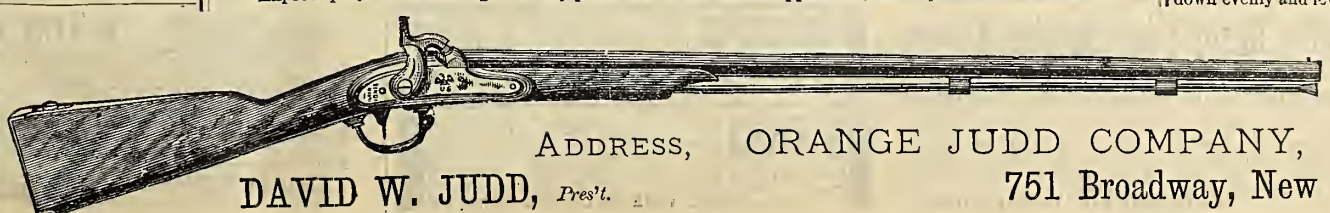
(fired without rest.)

Loading: SCOTT GUN, Powder, 3 measured drachms, (87 grains weight); Shot, 1 ounce.

"HANDY GUN," Powder, 2½ measured drachms (70 grains by weight); Shot, ⅞ ounce.

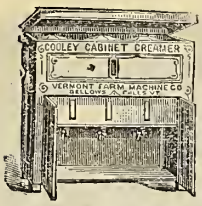
In all trials for both guns: POWDER, Hazard's Kentucky Rifle, F. G.—SHOT, Tatham's No. 8.—WADS, Eley's Elastic, one size larger than the bore; same wad over both powder and shot. Both powder and shot shaken level, and wads put down evenly and level.

"HANDY GUN," FOR Farmers and Others.



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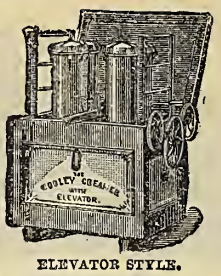
AMONG THEM

THE GOLD MEDAL at **PALACE OF INDUSTRY, Paris, France, 1879,** | THE GOLD MEDAL at **PALACE OF INDUSTRY, Paris, France, 1882,**

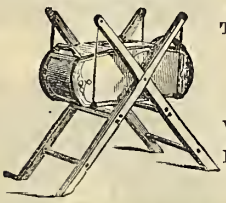
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ARE REFINED, SOLIDIFIED AND TEMPERED BY AN ENTIRELY NEW PROCESS.

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J. H. GOULD, Atwater, Ohio.

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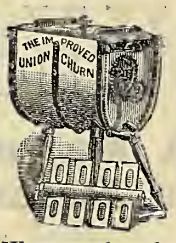
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Has Stood the Ten Test Years. **The Improved UNION CHURN.**



It is Warranted to be all right. You run no risk in buying one.

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Send for **Illustrated Price Catalogue.**

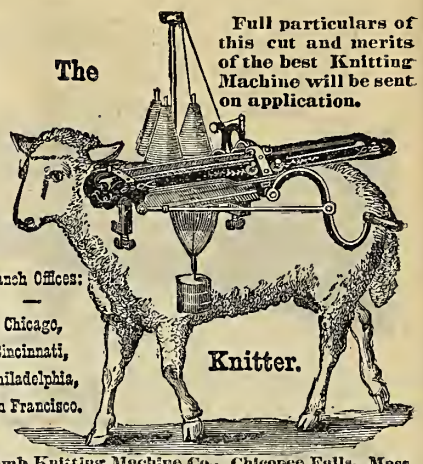
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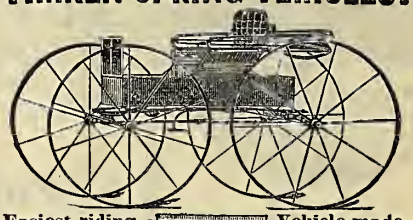


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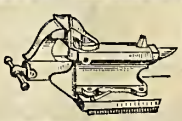
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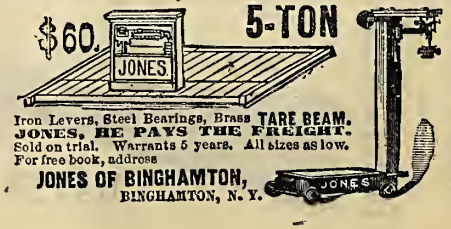
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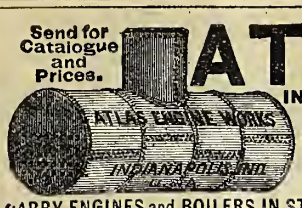
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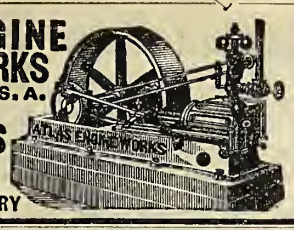


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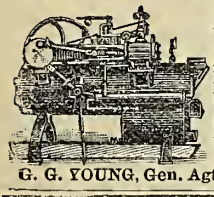
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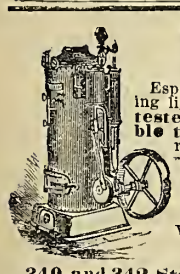
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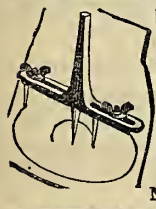
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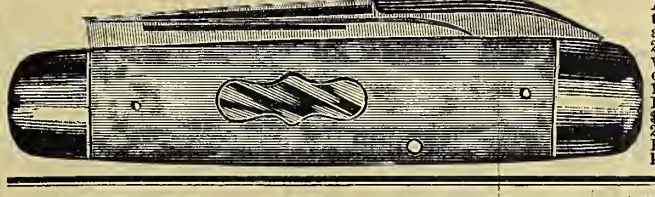
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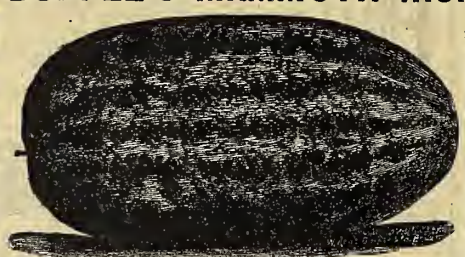
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MARCH
1884

AMERICAN AGRICULTURIST.



FOR THE FARM GARDEN & HOUSEHOLD

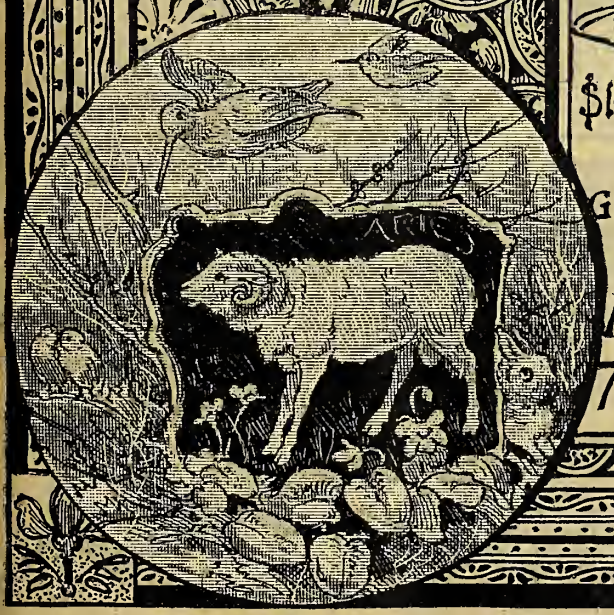
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751 BROADWAY, NEW YORK



Scab in Potatoes.—The Mapes Potato Manure.

DR. F. M. HEXAMER writes in January No. of "American Garden" as follows:

"Extensive experimeuts with remedies for Potato scab have long since convinced us of the efficacy of some special commercial fertilizers, and although the cause of scab is not positively known, its destructions can in most cases be entirely prevented. Recent experiments in this regard, made by Dr. Henry Stewart, Hackensack, N. J., fully corroborate our own experience. The Doctor writes:"

"I have just been digging some of my Potatoes (Early Rose), and send you samples. The clean large one is a fair specimen of some rows manured with the Mapes Potato Manure, eighty feet of row manured with the fertilizer produced one harrel, two and a half bushels. As the rows were three feet apart, the yield is equal to one hundred and eighty barrels, or four hundred and fifty bushels per acre. The other Potato, shown in our illustration, engraved from a photograph, is a fair specimen of those grown with cow and hen manure, yielding a barrel of fair Potatoes to three hundred feet of row, equal to a hundred and twenty bushels per acre. A large quantity; quite a half of this part of the crop, was completely destroyed by wire worms, and not more than half those saved would be fit for sale. Not a Potato, of those grown with the fertilizer alone, is touched by the worms enough to hurt it. I used ten loads of manure to a quarter of an acre, and fifty pounds of the fertilizer to one-eighth of an acre."

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(Continued from last month.)

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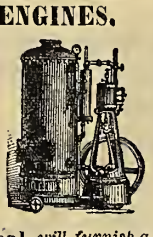
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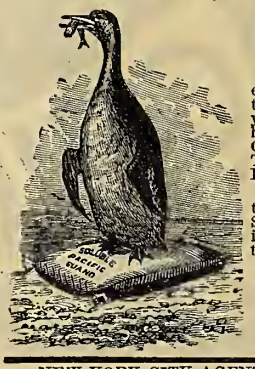
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Contents of this Number.

[Articles marked with a star (*) are illustrated; the figure with the star indicates the *number* of illustrations.]

Agricultural Experimcnt Stations 98
Apiary—Bee Notes 97
Back-Yard, The 105
Barberries, The Evergreen *.. 115
Barn, A Remodelled 5*.. 96
Barn Door Fastening *.. 99
Basket Willows 96
Bird, A Destructive Farm 112
Blessing, A Questionable 104
Boys and Girls' Columns:
Out of the Waters *.. 118
The Chimpanzee *.. 119
Puzzle, A Cluster of Gems *.. 119
The Doctor's Talks 120
About Sponges *.. 120
Mucilage and Paste 120
About the Weed Lists 120
Among the Wolves *.. 120
Butter, Influence of Placidity on 111
Carnations, Producing New *.. 115
Carrion Flowers, Stapelias *.. 113
Cattle, British Shorthorn *.. 101
Cattle, Feeding at Nebraska Ag'l College 99
Cattle Ranches, Consolidating 106
Cattle Ranches, Western, Among the 106
Cedar of Lebanon *.. 115
Chats with Our Readers 107
Cow's Switch, Confining it 108
Cisterns, Dimensions of 111
Climbers, Ivy, etc., Do They Injure Trees? 113
Clod-Crusher, Weed-Killing 3*. 99
Coop, Improved Barrel *.. 100
Coops, Spring and Summer Chicken 6*.. 105
Corn, Preparing Ground for in the West 97
Cuttings, Planting Out 101
Doctors Need Not Apply 106
Ducks—Duck Houses 4*.. 110
Editorial Notes on the Road *.. 106
Evergreens, Pruning 95
Fancy Points in Cattle and Fowls 98
Farm Work in March *.. 94
Fencing, Farm 4*.. 104
Front, On to the 106
Garden, Kitchen and Market 95
Grafting Knife *.. 95
Grape Vine—Buy One 101
Greenhouse and Window Plants 95
Greens from Field and Garden 96
Household:
A Plant Stand *.. 116
Economical "Making Over" Things 116
Home Hints for Spring 116
Fashions in Twine-Work 116
Holder for Newspapers *.. 116
Pretty and Inexpensive Curtains 117
A Cupboard Front *.. 117
Simple Hints for Busy Fingers 117
Kindlings in Paper Bags 117
Nice Breakfast Dish 117
Toilet-Table, Home-made 2*.. 117
Horseradish from Seed *.. 113
Horses, Sore Shoulders in 111
House Plants, Propagation of 99
Huckleberries and Blueberries 2*.. 114
Insects—An Enemy of Fruit Trees 8*.. 103
Insects, Emulsion of Kerosene for 114
Langshan Fowl 100
Lawns, How to Make 103
Lima Beans, Now for a Plenty 100
Melons, Why Farmers fail to Raise 110
Mules, Where at a Premium 106
Ornamental Planting—Suggestions 115
Pig Feeding, Profit in 112
Piggery, A Complete 6*.. 111
Potatoes, A Crop of Early 104
Potatoes, Producing New Varieties 102
Poultry, Coop for Fattening *.. 110
Red Hogs, Their Standard and Future *.. 103, 110
Root-Grafting of Shrubs *.. 105
Savoy Cabbage—Try it 101
Scaffolding, Adjustable Portable 100
Shelter Screens or Wind Breaks 95
Sorghum Sugar in Kansas 107
Southern Plantation Life 6*.. 108-109
Stable Dog, Shelf for *.. 97
Stanchions, Four Good 4*. 98
Stocks, Let Us Have More 105
Stump Puller *.. 100
Sunflower as an Oil Plant 102
Thrifty and Thriftless 8*.. 93
Timothy—Confusion of Names *.. 102
Trees - Forming the Top 102
Trellises, Garden for Vines *.. 105
Weeds, Old Saw for Cutting 4*. 95
Wheelbarrow Handles, Extra *.. 112
Work, Spring Around the House 104

For Humbug exposures, book reviews, business announcements, etc., see the last pages of the paper.

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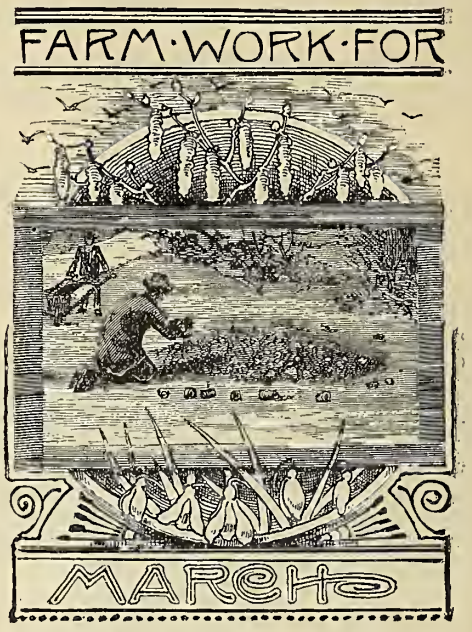
Sheet Music.—Make no Mistake.

The twelve pieces of Sheet Music are given as a Premium to every person, who immediately sends us *one new* subscription (or his own subscription, if new), to this paper for 1884, at $1.50 a year, and *ten cents extra* for postage. (See page 83, February number.) *No one, however, who* receives this Premium, *is entitled* to the Dictionary or to *any other* Premium, except the Engraving "Foes or Friends?" which is sent to every subscriber on receipt of ten cents extra for packing and postage. Those who expect to receive the Sheet Music, in writing for it, should send the subscription price and ten cents more for packing and postage, $1.60 in all, or $1.70 when the Engraving is also desired.

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Remember, those who receive one Premium for sending a new subscription, can not have the same name counted for any other Premium.

GARDEN AND FARM-WORK FOR MARCH



Engage the farm hands now for the year, and have steady employment for them. Do not let men be exposed in hard, cold rains, at the risk of a long sickness in the busiest time of the year.

Remove the surface water from the fields by trenches, before the ground is deeply thawed, and avoid wasteful washing of gullies. See that the outlets of all drains are clear and working properly.

Get all the seeds ready, and purchase any implements that will be needed later in the season. Have all the machinery of the farm in prime working order, and be abreast of the rush of work as it comes.

Horses feet need constant care during the cold, muddy, spring weather. A daily cleaning of the exposed parts is essential to health.

Cows neglected through the winter, now need careful attention. A warm bran slop, with a little ginger, should be fed daily. Calves may be freed from vermin by a mixture of lard and sulphur rubbed along the back and sides.

Sheep losing wool, may be relieved of the irritation by a mixture of equal parts of sulphur and cream of tartar, given in half ounce doses. Push early lambs forward rapidly, with a little milk from a fresh cow. They quickly learn to feed from a dish.

Breeding sows should be in separate pens, and given warm beds of cut-straw for their young.

Clean the poultry house and sprinkle with ashes or plaster. If lice abound, apply kerosene in small amounts to the perches, from which it will spread to the birds in effective quantities.

Orchard and Nursery.

If an orchard is to be planted, select a plot that will yield a good crop of corn. Plant out the trees and nothing else. Orchard land is abused unless it is given entirely up to the fruit trees. If the trees of an old orchard are good sorts it is useless to re-graft. Manuring and pruning are all such trees need. Nursery trees, when long on the road, often dry out and the bark becomes shrivelled. Bury such trees in sandy soil, root and branch, and in a few days they will become plump.

Buying Trees.—Orders should have been sent to the nurseries before this. Better defer planting until another year than to purchase of the glib-tongued tree peddlers, who will furnish only the refuse of nurseries, impartially named. Order direct from the nurseries.

Do not be in a Hurry to Plant.—Wait until the soil is in proper condition to receive the roots.

Injured Trees.—Branches broken off by heavy loads of snow or by winds should be cut back to the main branch and the wound covered with paint or melted grafting wax. Injury by rabbits and mice is often very serious. If the girdled

trees have any inner bark left on the wounds cover it with earth heaped up against the tree, or better by the use of a plaster made of cow-manure and any stiff soil. Bind on with a piece of old bagging.

Kitchen and Market Garden.

Early Planting requires early plants. The market-gardener depends upon his cold-frames and hot-beds. Every farm-garden or other family garden can provide early cabbage and cauliflower plants, lettuce, tomatoes, etc., by sowing the seeds in boxes of soil placed in the sunny kitchen windows. We have in former numbers described convenient window boxes, but any box that will hold soil will do. Sow the seeds about six weeks before the time at which it will be safe to set out the young plants in the open garden, and gain a month.

Rhubarb.—The acid of Rhubarb stalks is especially welcome in spring. The stalks may be had early by taking up a few roots as soon as the ground thaws; place them in a barrel and fill the spaces with earth. Cover the barrel and let it stand where it is warm. If a new planting is to be made, do it early. Divide an old root so as to leave a bud with each piece. Set the pieces in highly-manured soil, four feet apart each way.

Peas.—The round sorts, while not the best, are earliest and hardiest. Sow Daniel O'Rourke or Early Kentish as soon as the frost is out of the ground.

Seeds to be Sown Early, as soon as the soil can be worked, are: Beets, turnips, parsnips, salsify, spinach, kohlrabi, and radish. The following may be sown in seed-beds, to be transplanted: Cabbage, cauliflower, parsley and lettuce.

Things to be thought of.—Nothing helps along in garden work more than a good seed drill. A market garden must have it, and it will pay in a small garden. A line and reel is needed. A good wooden reel is better than a poor iron one, such as is often sold. Repair all implements. Have a good wheel-barrow. It is convenient to mark the handles of hoes and rakes with feet and half-feet. A lance-headed hoe or one like that described in January last, is a most useful tool; any blacksmith can make one. All seeds when sown should be marked with kind and date. Prepare labels; let them be so large that they cannot be hoed up without effort. Secure bean-poles and pea-brush before the trees and shrubs are in leaf.

Green-house and Window Plants.

As the heat of the sun increases the plants will grow with more vigor and present a greater abundance of bloom. The same cause will bring renewed activity among the insects, which will be ready to attack the tender new growth. Fumigation, by burning tobacco stems, if frequently applied, will keep the majority of insects in the green-house in subjection. It is difficult to fumigate window plants, and the best substitute for tobacco smoke is tobacco water. Pour boiling water on the stems, or if these are not readily obtained use cheap plug tobacco. This strong infusion, when used, should be diluted with water until the color is like that of tea. The plants may be sprinkled or showered with this, but the best way to apply it is to have the tobacco water in a pail, or if that is not deep enough, in a keg, and dip the plants in it. Invert the pots, the fingers being over the ball of earth. Plunge the plant and move it up and down in the liquid two or three times; then hold it, still inverted, a few minutes, or until it ceases to drip. For scale insects which often attack ivy, smooth-leaved and other house-plants, apply the kerosene mixture or emulsion, made as described on p. 114.

Annuals that will soon be needed to plant out in the borders may be sown in the green-house or in boxes or pots of soil in the window. Drummond's phlox, stocks, candytuft, asters and others will be needed in abundance. Plants to be set out, from the green-house or window, should be hardened off by gradual exposure, and if need be, pruned into compact form. Propagation of geraniums, verbenas, and other plants to be used in the beds, should be rapidly pushed forward.

A Grafting Knife.

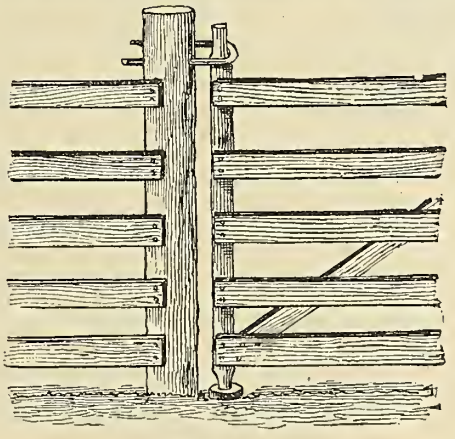
Mr. F. B. Mills, N. Dunbarton, N. H., sends us a sketch of an instrument used in grafting. It can be made from an old razor or file. The broad blade is sharp, and the narrow end is turned and made into a perfect wedge. After cutting the limb to be grafted, split it in the center with the wide



blade, then insert the wedge end in the split, and hammer lightly until room is made to insert the cions. With one light blow the wedge can be drawn without disturbing the cions. For a mallet use a small hard-wood club, like a policeman's billy.

Another Gate with Wooden Hinges.

We herewith give another wooden-hinged gate, in addition to the forms presented in the February



A WOODEN-HINGED GATE.

American Agriculturist. Its simplicity and ease of construction are evident from the above engraving.

Shelter-Screens or Wind-Breaks.

A house upon the open prairie cannot be regarded as complete until it is provided with a screen of trees to break the force of the prevailing winds. While a necessity on the prairies, many exposed dwellings elsewhere would be greatly benefited by the protection afforded by a belt of trees. Besides adding to the comfort of the family, such a screen is a matter of economy in the saving of fuel, an important item in places equally distant from wood lots and coal mines. What is good for man is equally good for his beasts, and in arranging for shelter belts, the barns, stable, sheep shed, piggery and poultry house should be included in the plan. In some localities, not only on the prairies, but near the sea coast, shelter must be given the orchard if fruit is expected, and crops of both the farm and garden will receive great benefit from a tree belt. In affording protection to the whole farm the shelter belt may also be a timber plantation, and the trees selected with a view to their future value as timber. Of course the most complete shelter is afforded by a belt of evergreens, but these grow slowly and it will be a number of years before their full effect will be felt. The shelter afforded by deciduous trees even when bare of leaves is greater than is generally supposed, and while evergreens are planted for the permanent screen, an outer belt of cotton-wood or willow will be of great use. Besides sheltering the house and farm buildings it will incidentally promote the growth of the evergreens by the protection it affords them. As to the evergreens the question will be, "What trees shall we plant?" If the intending planter lives where native trees may be had within an easy distance, he may get his trees with little outlay by taking up young seedlings of Arbor Vitæ, White and Black Spruce, White Pine or Hemlock. Some evergreens transplant more readily than others, but with all, it will be safer to plant the young trees closely in rows, and let them remain for a year before planting them permanently. Those that survive the first year will be quite sure to live when planted in the belt. If trees are to be bought, the Norway Spruce easily stands first for this use. Its rapid growth, hardiness, the complete shelter it affords, and its value for timber are all in its favor, while the ease with which it is raised from seeds allows it to be sold at a low price. Some nurserymen offer young seedlings of this and other evergreens so small that a hundred can go in a package by mail. These, if set out in rows and grown for a few years before they are planted permanently, will afford trees for the screen at a very small cost. The benefits of the wind-break may be experienced many years sooner by purchasing larger trees. The native trees mentioned above may be had from the nurseries. The Austrian and Scotch Pines are also useful for shelter. In planting the Norway Spruce in a single row six feet apart is the usual distance. It is better to plant in two rows, setting one with the trees ten feet apart, and ten feet from this another row, with the trees opposite the spaces between those of the first row. Two rows are enough for a screen, but if more trees are to be planted for timber, other rows may be added, the trees in which should alternate in the same manner.

Pruning Evergreens.

It is not very long ago that people supposed that to cut an evergreen was to surely kill it. Later experience has shown that these trees, when necessary to bring them into shape, may be pruned like any others. The pruning of evergreens has sometimes been greatly abused by cutting off the lower limbs and presenting a monstrosity which some one has compared to "a hay-cock upon a stump." The natural form, when an evergreen has room to develop, is that of a cone, with its lower branches resting upon the ground and forming a beautiful pyramid of green. Instead of cutting away the lower branches, the better way would be to apply the axe to the trunk, and be done with it altogether. Evergreens so generally take a perfectly conical shape that pruning is only needed to preserve that form; when a branch grows with unusual vigor and threatens to destroy the symmetrical shape, it should be cut back. To avoid all appearance of mutilation, make the cut upon the under side of the branch, and sloping toward its end. The shape of evergreens may be controlled with very little cutting, by a proper pinching out of the buds which by prolonging would form branches. In short, the pruning of evergreens presents very little difference in treatment from that required by a deciduous, fruit, or an ornamental tree.

An Old Saw Cutting Weeds.

This is the season to prepare implements, etc., for the busier days. Mr. "E. E. B.," a subscriber in Prince Edward's Island, sends us a sketch of the method of turning part of an old saw-blade to good account as a home-made weed-cutter. A piece was cut off, four by six inches, and four holes made through it, as in figure 3. A pronged iron or steel

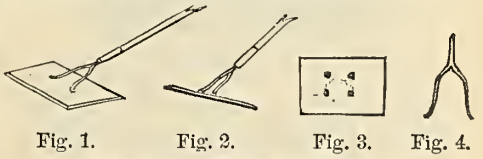


Fig. 1. Fig. 2. Fig. 3. Fig. 4.

PARTS OF THE WEED CUTTER.

piece (fig. 4) is then riveted on and driven into an old rake handle. Grinding the edges of the steel blade completes a good garden tool that can be made in a very short time with little or no expense. It is very convenient for destroying weeds, especially those between narrow rows, and the hours saved in weeding will fully compensate any garden worker for the cost of this implement.

A Remodelled Barn.

ALFRED H. GLOVER, SAGINAW CO., MICH.

The old barn, figs. 1 and 2, was thirty-four feet by forty-eight feet, with sixteen-feet posts, and built the usual way with four bents. The threshing floor was twelve feet wide, with the stables on one side and hay-mow on the other. There was a shed in rear of barn, twelve by thirty feet. The sills of the barn rested on oak blocks, about one foot above the ground. In remodelling, the main building was raised two feet from the ground, a stone foundation one foot thick being laid all around, and extending two feet into the ground to be below frost. The threshing floor was raised two feet above the sills, and the ground excavated two feet under it. Cross-walls were then built, making a cellar twelve by thirty-four feet, and six feet high. There are two small windows

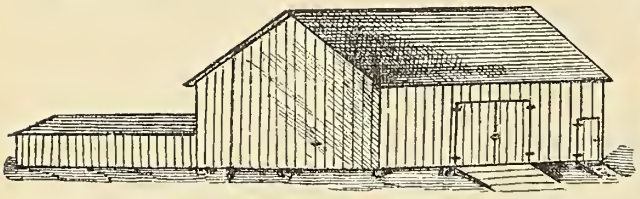


Fig. 1.—FRONT AND END VIEW OF OLD BARN.

in front, and a door in rear of cellar. A foundation, similar to that under main barn was then built for a wing thirty-four feet wide, and extending three feet back from main barn. The wing is same hight as the barn, with roof hipped into main roof, and a ventilator built in the center of roof, as seen in figs. 3 and 4. The old shed was moved to rear of the wing, and continued around each way fifteen feet on each side of wing, as seen in figs. 4 and 5. A new shed was built on each end of the main

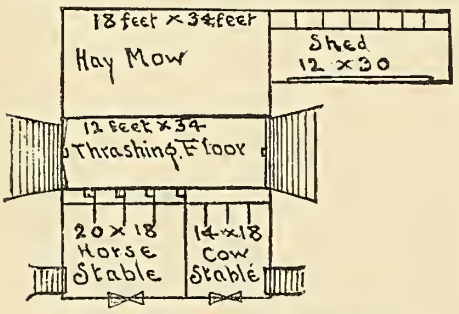


Fig. 2.—GROUND PLAN. OLD BARN.

barn, twelve by twenty-four feet, open in rear, the lower part for manure, and the upper part for bedding, as shown in the figures 3, 4 and 5. The stables are twelve by twenty feet, with stalls for four horses and five cows. An alley four feet wide runs along in front of mangers for feeding. At the front end a door opens into the granaries. A harness room four by fourteen feet is convenient to the horse stable. A box stall, nine by fourteen feet, next to cow stable, is used for cows with calf. An entrance way closed by a gate, allows

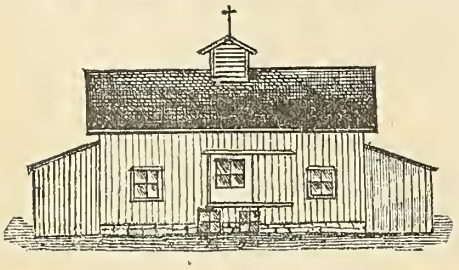


Fig 3.—REMODELLED MAIN PART WITH SHEDS.

access from stables to threshing floor. Floors over stables, granary and threshing floors, admit storage of unthreshed grain or hay. At the front of the barn is a sliding door with a large window in it for admitting light and air. The walls of granaries are made of two by four scantling, laid flatways one on top of another. Stables and granaries are eight feet high. The whole remodelled barn is painted red with white trimmings.

Materials and Cost.

Sills 6 by 8 inch, two 30 feet long, and four 34 feet long=784 feet; sills for sheds, 6 by 6 inch=606 feet; posts 8 by 8 inch, six, 16 feet long, and three 12 feet long=704 feet; girths, 6 by 6 inch, two each of 18, 17, and 12 feet length=282 feet; plates, 6 by 6 inch, two 40 feet, and two 34 feet=444 feet; three beams, 6 by 8 inch, 34 feet long=408 feet; thirty-five joists, 12 by 2 inches, 18 feet long=1,260 feet; scantling, 2 by 4 inches, for sheds, etc., 5,000 feet; rafters, thirty-two, 2 by 4 inches, 22 feet long=402 feet; planks for floors and bridges, 4,200 feet; Total timber, 14,000 feet, $15 per 1000 feet	$210,00
Shingles, 20,000, @ $3 per 1000	60,00
Stock boards, 3,000 feet, @ $20 per 1000 feet	60,00
Roof boards, 7,000 feet, and battens, 704 feet, @ $10	77,04
Windows, nails and trimmings	50,00
Carpenter work, $150; painting $75	225,00
Excavation 60 yards, @ 20c. per yard	12,00
Stone for foundation, 1,500 cubic feet @ 6c	90,00
Total cost of Remodelled Barn,	$784,04

Basket Willows, Osiers and their Culture.

Every few years there is an excitement concerning willow culture, and our correspondence shows that one of these periods is at hand. We answer a number of inquiries by saying that willows, of the finest kinds, can be grown in this country. Every cultivator of experience is aware that producing a crop is often easier than selling it. In considering a new culture the disposal of the product must be taken into account. If one has a crop of willows how can he sell it? Willows are in demand by a very small class of operatives—basket-makers. Nearly all the basket-makers are from Europe, and have their prejudices in favor of their former homes. When the dealers in willow tell them that good basket material cannot be produced in this country they are ready to believe it, and the importers, by refusing the American product at any price, have almost a monopoly of the trade. This state of the willow trade cannot long continue. There are several parties having willow plantations who are bound to sell their productions. Finding that the importers will not take their material they put up the rods in the usual bundles and send these like any other product of the farm and garden, to some city commission house. The bundles being exposed for sale are seen by city basket-makers, the best judges of the material, who examine and buy. Thus the exclusiveness of the importers is gradually broken down: a few cents less in price is an argument that the basket-makers can appreciate. The two centres of the willow industry at present are Hartford, Conn., and Syracuse, N. Y. A Manufacturing Co., at the former place, finding that their estate was being washed away by the river, planted willows very largely, in order to preserve the river bank. Finding themselves with a large willow plantation on hand, the company imported a number of basket-making families to use up material that would otherwise go to waste, and a prosperous village of basket-makers was established. The great variety of willow-ware sent from this establishment is a sufficient answer to those who assert that the finest stock cannot be grown in this country. At Syracuse some Germans several years ago, planted willow and worked it up into baskets; the industry rapidly increased, more families came, more acres were planted and more baskets made. At present there is a prosperous community, with hundreds of acres in willow and their annual sales of baskets now amount to thousands of dollars. That willows of the best kinds can be produced in this country there is not the least doubt, but with this as with all unusual crops, we advise no one to undertake it until he has made sure that he can dispose of the produce. Because some willows grow in swamps, many think that they can only be successfully cultivated on wet land. This is a mistake; any land in good condition for a corn or other farm crop is better for willows than wet soil. While the term osier is often applied to any willow grown for basket-making, the willow known as the Osier is one of the coarsest and poorest. The desirable kinds of willows and manner of planting them, etc., may be given another month.

Greens from the Fields and the Garden.

The desire for green vegetables in spring is not a mere whim of the appetite, but a demand of nature for something the system needs. Farmers, especially those at a distance from markets, live largely upon salted meats. Experience has shown that the continued use of such meats induces scurvy and other disorders unless their bad effects are offset by an abundance of fresh vegetables. "Corned beef and cabbage" is not a combination made to please the palate, but one that meets a want of the system. Cabbages, beets, turnips and other vegetables are used during the winter to ward off the ill-effects of daily salt meats, but with the advent of spring the desire for vegetable food becomes stronger, and is best satisfied by "greens," as various plants are called, the leaves of which are eaten. The majority of these plants grow wild, and the boys are sent to gather dandelions in the

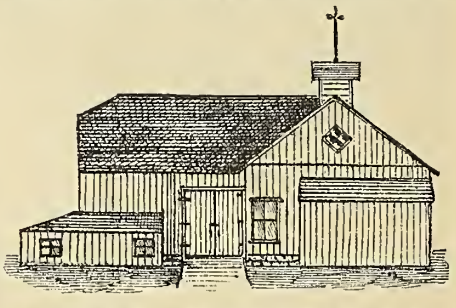


Fig. 4.—ELEVATION OF REMODELLED BARN.

field, marsh marigold (often, but incorrectly called "cowslip") from wet meadows and the brookside, the shoots of poke-root and nettles from the roadside and fence corner, and a number of other wild plants. It would be better to have a supply of greens in the garden, as aside from the great waste of time in hunting for them, the wild plants having to struggle with many others, are tougher and not so well suited for food as those from the richer soil of the garden. To have the earliest greens from the garden, preparation must be made the fall before, by sowing spinach and kale to be wintered over. Dandelion seed is sown in spring, as it needs a whole season's growth before it will afford a cutting. The earliest greens to be had from the garden, in the absence of those kept over winter,

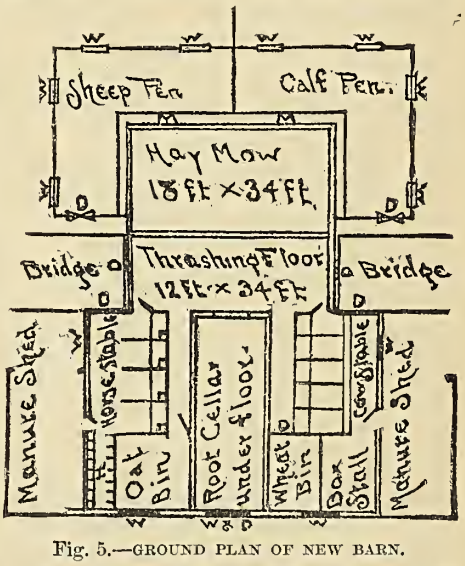


Fig. 5.—GROUND PLAN OF NEW BARN.

are afforded by cabbage sprouts. The modern method of wintering cabbages, by inverting the heads and covering them with earth, is well for the heads but the stumps are killed. Where cabbages are wintered in a cellar or by setting them upright in trenches, the stumps are saved and are almost as valuable as the heads. The stumps should be set out as soon as the ground has thawed, planting them six or eight inches apart. They will soon push numerous tender leafy shoots which should be cut when two or three inches long; they will afford several successive cuttings. Turnips may be

treated in the same manner. As soon as the soil can be made fit for the seeds, sow spinach in rows fifteen inches apart, and at intervals of a week until the middle of May. Beets may be sown in the same manner, especially for greens, or they may be thinned, leaving a part of the seedling beets to form roots. By proper management the farmer can provide a daily supply of greens.

Preparing Corn Ground in the West.

Over a large part of the Western prairie regions corn is by far the most important crop. Except for the first two or three years after the sod is broken, it is the most certain, and the most remunerative. There is no way to ensure a crop the same year the ground is opened. But when breaking is done quite early, as soon as vegetation starts, and the seed is put in the sod with a spade, or better with a horse-planter having a "sod attachment," a moderate crop may frequently be obtained. On certain soils, and in wet years, sod corn sometimes yields thirty bushels per acre; but this cannot be counted on with certainty.—A much surer way is to break the sod as usual, and follow the breaking plow with a smaller stirring plow which throws up a strip from the bottom of the first furrow. This subsoil can be torn to pieces with the harrow to form a good mellow surface bed. Corn planted in this way, with a planter, will yield an average crop without any cultivation. In hot, moist seasons the yield will be larger.

In preparing land for corn farmers differ in opinion as to whether it is better to gather and burn vegetable rubbish, corn stalks and the like, or to cut it up with a stalk cutter and plow it under. The latter urge that the stalks and stubble covered by the plow enable the land to stand drouth better and that rotting in the ground they help to increase its fertility. The former argue that this rubbish furnishes harbor for insects during winter, and that burning the trash kills large numbers of these, and destroys many seeds of weeds. It is claimed, too, that some of the stalks which are plowed under remain near the surface and interfere with the regular operation of the planter, the runners rising nearly or quite out of the ground when passing over them, and then dropping too deep for a time.—Where the listing machine is used it is absolutely necessary to rake and burn all trash on the surface. Some readers of the *American Agriculturist* may not be acquainted with this peculiar machine for planting corn. It looks like a right and a left-hand plow with the landsides placed together, forming in fact a stout shovel plow. It is usually drawn by three horses and throws up a furrow on each side. Just under the inside is a sort of miniature subsoil plow, or stirrer, which tears up and mellows the soil in the bottom of the furrow. In the machines most used about here the planting apparatus is separate from the furrowing part, and follows after it, drawn by a different team; but sometimes they are united in one.—Farmers differ as to the merits of the two methods. The truth seems to be that in warm, dry springs, on land free from trash the combined implement works admirably, especially for late planting after the ground becomes warm, since it allows the plowing and planting to go on together. It is by all odds the cheapest, as two men with four horses will, with the combined implement, plow the ground and plant five to seven acres of corn per day.

In Nebraska and Kansas there is some difference of opinion as to the comparative advantages of fall and spring plowing for corn, with a large preponderance in favor of the former. When land is moist enough in autumn to plow well, it is usually if not always best to plow it then; but if so dry that it cannot be well plowed, leave it until spring.

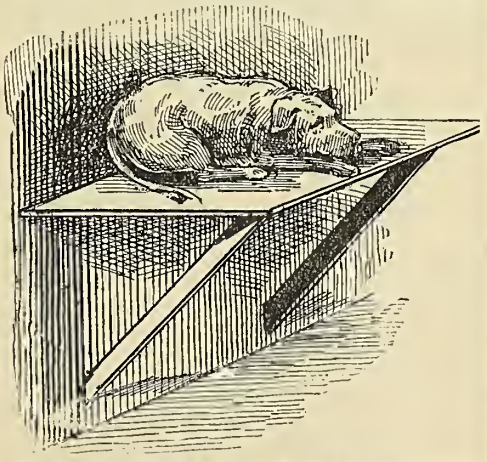
Whether the plowing should be deep or shallow depends upon the kind of soil. On deep, black soft loams, corn roots will penetrate as readily into the subsoil as into the plowed portion, and little is gained by stirring it, though an occasional deeper plowing, even in soft loamy soil exposes fresh portions to the atmosphere, and develops more plant food. For stiffer subsoils, packing easily, it pays to plow deeper to pulverize and aërate them.

Where deep plowing is the rule, its advantages will be most striking in dry seasons. In 1874, a very dry year in Nebraska, there were in Sarpy County two corn fields, side by side, each containing about sixty acres. The soil was the same, plowed and planted at the same time, and cultivated substantially alike except that one was plowed seven to eight inches deep, the other three to four. The former yielded about forty bushels per acre, the latter showed only an occasional ear, and yielded not over six or eight bushels per acre. Taking one year with another, on all prairie uplands, it is safe to plow pretty deeply. Yet it must be admitted that in some cases good fair crops of corn have been raised by planting between the old corn rows, and not plowing the ground at all.—For fall plowed ground it is frequently necessary, and always desirable, to cultivate it before planting. This is usually done with the common four-shovel corn plow. The pairs of shovels are spread as far as possible apart, and on returning, two shovels are made to run between the marks made going the other way, and the other two run outside, thus stirring all the ground. This cultivation keeps down weeds until the corn gets a start, and loosens up the surface soil so that it warms better and starts the corn sooner. After thus cultivating, it pays to harrow once across the cultivator marks, and many good farmers roll before planting.

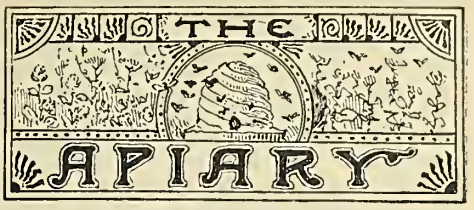
All of these things take time, and many are impatient of anything but the shortest and easiest way. Now it is possible for a smart man with a good team and implements to plow the ground, plant, and cultivate an acre of corn with one day's work of himself and team, thus: fourteen acres of land can be plowed in six days, and planted in one day, with a two-horse planter and check rower; harrowing once, one day; cultivating first time, two and a half days; other two times, three and a half days, making just fourteen days in all. It is conceded that there would be more profit in giving more time to it and doing the work better.

Shelf for the Stable Dog.

A good dog about the stable is very desirable, and the writer is confident he has saved many dollars by keeping one. It is not fair to let him sleep just where he can find a place to lie down, while a dog-house is apt to be neglected and be infested with vermin. To afford the dog a chance to be



cleanly and comfortable, make him a shelf or platform of one inch pine, planed, two feet wide by three feet long, or according to his size. Tack a two-inch cleat around three sides of it, projecting an inch on the upper side. Put this up securely where it will not be too much in the way, but will still be in sight of the main entrance to the stable. If not in a corner, it can be supported in front with two by one inch pieces, as shown in the engraving. Twelve to eighteen inches is a convenient hight from the floor. A good thick mat, soft and clean, or even a piece of carpet, should be provided, and the dog can very soon be taught to lie there and keep an eye on his master's property. D. Z. E.



Bee Notes.

BY W. Z. HUTCHINSON.

Varieties of Bees.—The good qualities of the Italians are: amiability, industry, length of tongue, and the masterly manner in which they defend their combs from the bee-moth larvæ. Their undesirable traits are: persistent clinging to the combs when an attempt is made to dislodge them, indisposition to enter surplus receptacles, and their manner of filling the cells so full of honey that it touches the cappings, which gives to the combs a dark, watery appearance.—The Black or German bees are superior comb-builders, their combs are straight and true, and are snowy white on account of the empty space they leave under the cappings; they readily enter the surplus department, and they can be easily shaken from the combs; while their unpleasantly irritable nature, and their unprofitable habit of not storing very much surplus unless the pasturage is excellent, are certainly undesirable characteristics.—The Syrians, which have lately been introduced, have no valuable qualities not possessed by the Italians, while they have the additional bad ones of extreme viciousness, prolificness, and of not properly ripening and sealing the honey. It may seem surprising that we should consider extreme prolificness undesirable. It is valuable to the man who rears bees and queens for sale, but not to the honey producer, who looks to the quality rather than to the quantity of his bees. The Syrians breed from early spring until late in autumn, never stopping so long as a drop of honey remains in the hive; while their main object in rearing bees appears to be that the bees may gather honey with which to rear more bees. Their philoprogenitiveness is greater than their acquisitiveness.—For producing extracted honey, the dark, leather-colored Italians have no superiors, but the producer of comb-honey who ignores the good qualities of the German bee, does so at a loss. In short, the best bee for producing comb honey is a judicious cross between the dark, leather-colored Italian and the brown German, or so-called "black bee."

Queens Entering the Surplus Department.—Many bee-keepers, when working for extracted honey, have been troubled by the queen entering and depositing eggs in the section boxes, or in the combs of an upper story. To remedy this, zinc honey boards have been used, perforated with holes of such a size as to allow workers but not the queen to pass through. The principal objection to these honey boards is their expense; and one bee-keeper the past season successfully substituted slats of wood placed near enough together to exclude the queen but not the workers. These cost only a third as much as zinc.

Labels.—A neat, attractive, but small one is best for glass packages. When honey is put up in tin there is some excuse for adornment with labels, but even then highly colored, flaming labels give too much of a tin-can, bar-soap, groceryfied appearance. Leave the gaudy "chromos" to the packers of fish, fruit and vegetables; the product of the apiary requires nothing of the kind; it is beautiful in itself. "Beauty unadorned is most adorned."

Straight Combs Without Separators.—Separators, that is, sheets of tin introduced into the surplus department of hives to insure the building of straight combs, are being discarded by many of the leading honey producers. Had sections been made narrower when first invented, and had the "glassing" of filled sections never been in vogue, probably separators would have remained unused. Sections an-inch-and-a-half wide, instead of the usual two inches, are the

best width for obtaining the straightest combs without separators. They can be one-fourth inch wider, and eatable combs be received upon three conditions, viz.: if the sections be filled with comb foundation (preferably that made on a press) excepting one-eighth inch at each side, and one-fourth inch at the bottom; second, if the hives stand level, at least in a direction at right angles with the combs; and third, if Black or German bees, or at least those having a dash of German blood, do the work of filling the comb.

Fancy Points in Fowls and Cattle.

A writer in an English journal comes out very strongly against fancy points in fowls. Thirty years ago, he says, they had abundance of eggs and the best of table fowls; now nothing like equal to them, all in consequence of the folly of judges at the poultry shows, getting up absurd "Scales of Points," which the fowls must carry, even to a feather, or fail of winning a single prize.—The superb Dorking is turned from a luscious table fowl into a dark-plumaged, thick-skinned mongrel, scarcely fit to eat. Time was when their colors were pure white, or gray, or handsomely mottled by various colors. In breeding a purely white face the noble full-breasted Black Spanish has dwindled from ten or twelve pounds in weight to such a miserable size and shape as to make it a profitless bird, unworthy a place any longer in a good poultry yard. The Game fowl has been robbed of its fine round full flesh, and given long stilty legs; the Hamburgs are bred down in size and egg-laying propensity. The greatest production now of the formerly grand Brahmas is feathered legs and vulture hocks. People do not eat plumage, and yet in the Brahma, flesh and size have been sacrificed to a feather.—This reminds us of the ridiculous efforts of a few Western Shorthorn Cattle breeders, who endeavored some years ago to make a dark deep, red color the criterion of the choicest of the breed, totally ignoring pure white or patched with red, and the most beautiful of all the colors, a rich strawberry roan. Some Jersey breeders at the same time strove to make solid colors, with black points, tongue, and tail switch, the things to be coveted. Happily both parties have been snubbed, and a Shorthorn continues to be judged as in the origin of fitness for the improvement, by its form, capacity for the dairy and shambles; while the butter test now rules among the Jersey breed.

Four Good Stanchions.

In figure 1, the latch, *e*, is one foot long with one end fastened by a screw or bolt. To release the

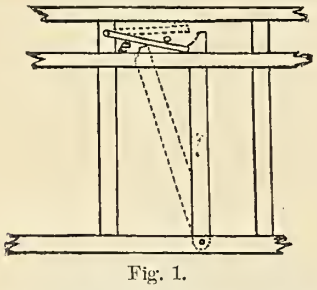


Fig. 1.

animal the end is raised as indicated by dotted lines. The latch shown in figure 2 works in the same way, only the latch is secured to the upper

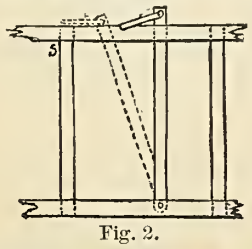


Fig. 2.

end of the swinging standard, the opposite end fitting or falling into the notch cut in the upper part of the rail, *s*.—Figure 3 represents the simplest form possible, in which a wooden pin, *p*, secures the swinging standard in position. The stanchion given in figure 4 is more expensive than the others. A piece of iron or even stout wire, is bent in the form of the letter U, as at *l*, the ends being secured

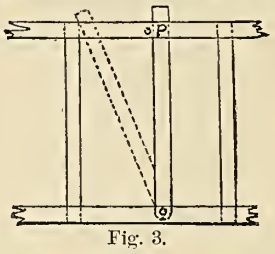


Fig. 3.

to each side of the rail by screws or even by nails. The animal is released by raising the free end of the bent iron. The top of the swinging standard

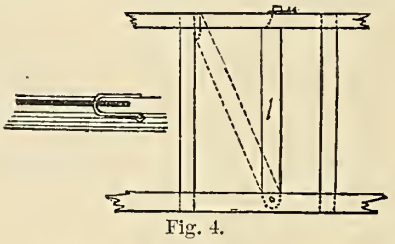


Fig. 4.

projects above the rail about an inch-and-a-half, and is made slanting towards the animal so as to be self-fastening when moved into its position.

Agricultural Experiment Stations.

W. E. STONE.

About the beginning of this century, an interest in all branches of agricultural science began to engage the attention and offer an inviting field to investigators. The increasing population, and the decreased fertility of exhausted soils, indicated to thoughtful minds the necessity of inquiry, and a search for remedies; and in successive years Priestly, Lavoisier, Liebig, Boussingault, Lawes and Gilbert, and numerous others, studied agricultural questions in a scientific manner.—In 1851 the first Agricultural Experiment Station was founded in Saxony by a society of farmers. Its value became so apparent at once that it was recognized by the Government, and others soon followed, until now there are one hundred and thirty stations in Europe, eighty in Germany alone. But with this enthusiasm in Europe, progressive Americans were long at a stand still, owing chiefly to an essential difference in our agricultural system. Our lands were broad and fertile. Though some on the eastern seaboard were showing loss of power, it was easier to draw on virgin soil than to redeem the old; and only when the exhausted acres reached an important proportion of the whole, did we begin to listen to the claims of agricultural science.

In 1876 the first Agricultural Experiment Station proper, in the United States, was established at the Wesleyan University, at Middletown, Connecticut, after much earnest effort by intelligent farmers, by the aid of a small appropriation by the Legislature, stimulated by a liberal donation from a philanthropic citizen, and the free tender of college laboratories, etc. Its success and usefulness were so manifest that larger annual appropriations were provided, and the Station, accepting the proffered appliances of the Sheffield Scientific School of Yale College, has now buildings and lands of its own in the suburbs of New Haven.—In 1877 North Carolina provided a Station now in operation at Raleigh.—In 1880 the New Jersey State Station was started in connection with Rutgers' College, at New Brunswick, near which is the State Experimental Farm.—In 1881 the New York Legislature provided for an annual appropriation of Twenty Thousand Dollars for an Agricultural Experiment Station, which began work at Geneva in 1882. It is the best equipped one in this country.—In 1882 Ohio founded a Station at the State University at Columbus. The same year Massachusetts incorporated a Station that began work in July, 1883. These comprise the public Agricultural Experiment Stations of our country. In addition, most of the Agricultural Colleges carry on some special line of investigation. The only station in the United States supported privately and yet conducted on scientific principles, is that at Houghton Farm, Orange County, N. Y., established in 1876. This briefly is the history and present status of organized research in agricultural science in the United States.

The work so far accomplished has been as good as could be expected from Stations meeting and surmounting the first obstacles of organization. There have been completed a large number of chemical analyses of fertilizers, feeding stuffs and miscellaneous articles, and seed testing has received a good degree of attention. At the New Jersey Station feeding experiments have been prosecuted, and at Houghton Farm especial attention has been paid to the corn crop in its relation to fertilizers, to the study of agricultural physics, and the diseases of fruits.—Much allowance is to be made for the youthfulness of our institutions; it has taken Lawes and Gilbert thirty years to collect the valuable data which places the Rothamsted Station ahead of all others; and in all work of this kind, averages of a large number of experiments are sought, rather than isolated trials. In the work in progress at our Experiment Stations we are of course yet far behind what is being done in Europe. There, questions are treated in the most elaborate and exhaustive manner; year after year is devoted to the study of a single subject by the most scientific and thorough methods, and from every possible point of view. Take the work done at Rothamsted; observe how accurate and painstaking the records, how careful and thorough each step, and finally how cautiously the deductions are drawn. We have nothing equalling or approaching this. Most of our work, thus far, has been superficial and at random; not poor, but quite the contrary, and answering the requirements; but the time has come for something different, for a step upward. It is now a settled fact that we can support Experiment Stations and appreciate their work; it is therefore so much the more important that we raise them up and make their work of the highest scientific value. Hitherto their support has depended much upon the popular voice, and the Directors felt bound to appeal to popular feelings by a kind of work easily comprehended and "taking," but in nine cases out of ten almost devoid of scientific or economic application, such as seed testing and chemical analyses—excellent and very necessary work so far as it goes. Its effect in restraining the cupidity of dealers in fertilizers and seeds is of immense value to farmers; but it discovers few new facts, and contributes very little to the science, and will be of small value after the expiration of a single year. True, not all the Stations confine themselves to such work; the feeding experiments at the New Jersey Station, and those just instituted in Massachusetts, with the work in agricultural botany in New York, are noteworthy exceptions. But the standards will continue low until the people acquire new views. They need a certain familiarity with scientific methods, and to learn to appreciate the value of a single fact systematically sought and proved, in comparison with a mass of superficial experiments. But there is a constant tendency in this direction, and its attainment is simply a matter of time. Meanwhile the directors of stations can do much to lead public thought by a strict adherence to scientific principles. Those who bid for popular applause build on sand. Time is the test of value; how little of the work so far done at American Stations will be quoted ten or twenty years hence as is that of Liebig or Lawes and Gilbert. A private institution like Houghton Farm has the advantage over public ones in being free from all outside influence, and privileged to take up special kinds of work, requiring years perhaps for their completion, but safe in the consciousness that the annual report is not obligatory, and the necessary funds are not dependent upon the degree to which popular sentiment is played upon. The Rothamsted Station

leads all others to-day because its work has been persevering and continuous in direct lines, although it has taken many years to briug it to a point where it could be appreciated hy the public.

With the adoption of more scieutific methods and higher staudards, will come the nccessity for Special Stations dealing with special questions only. This they have alrcady attained iu Germany, and certain Stations analyze fertilizers, others test seeds, and some conduct feeding experiments, and as a natural consequeuce of this division of labor the most valuable results are attained. Thus far our Stations have no common meeting ground. A kindly interest in each others' labors exists, but there should be something more. Individual organization should he supplemented by a collective one. The German Stations puhlish a bi-monthly journal containing a digest of their work and serving as their official organ. A similar journal is needed in America as an incentive to a better work, as well as a valuahle record of important results.

Feeding Cattle.

Some Notes from the Experimental Department of the Nebraska Agricultural College.

Looking over the experimental work of the past year, some points are suggested as likely to be of interest to the readers of the *American Agriculturist.*

1.—Two steers—40 months old wben put up—were fed all the corn and hay they would eat for 215 days. Their only shelter was a shed open to the south. Up to the beginning of the experiment they had been fed only hay and grass, no grain. During the 215 days they ate nearly two tons of prairie hay each, and 81.6 bushels of corn. The two steers together, gained on an average of 1.78 lbs. per day, and 4.59 lbs. for every hushel of corn consumed. The percentage of gain on live weight was 27. At the end of the experiment one weighed 1,835 lhs., and the other 1,675. At the same time a number of steers of the same age were fed on a farm adjacent to the College in the same manner, except that they had no shelter, and received about 30 lbs. of ensilage (of corn), daily, instead of hay. On an average these steers gained 50 lbs. more than those of same age fed with hay. The ensilage seemed to make the corn more digestible, so as to enable the animals to accumulate flesh faster. Two other steers of same general appearance, but one year younger, were fed under same circumstances and conditions as the two first mentioned. During 174 days they ate 74.8 bushels of corn, gained at the rate of 2.12 lbs. per day, or 4.96 lbs. for each bushel of corn consumed, and gained 38 per cent of their weight when first put up. One weighed 1,400 and the other 1,250 at the end of the time. The heavier one gained 425 lbs. in 174 days, or 2.44 lbs. per day, the other gaining 110 lbs. less in the same time. Allowing, as we may safely do, tbat the pork made by the hogs that followed the steers paid for the hay consumed, this steer paid a handsome profit for feeding. It cost $39.00, and sold for $77.00, a gross profit of $38.00 Dividing $38.00 hy 74.8 (the number of hnshels of corn consumed), gives 50 cents as the value received per bushel for the corn. The other steer of the same age, returned only 42 cents a hushel for the corn consumed. Such a calculation shows the importance of selecting good steers to feed, and at the same time the difficulty of doing this. These two were hoth half-blood Shorthorns, sired by the same bull, reared in the same way, and very much alike in general appearance. Yet with corn at 40 cents a hushel, one animal would barely return expenses of feeding, while the other would pay a fair profit on each hushel consumed.

Two yearling Shorthorns were fed during the same 174 days as the two two-year olds. These ate 60.4 hushels of corn each, gained at the rate of 1.89 lbs. per day, or 5.43 lbs. of beef, live weight, for each bushel of corn consumed, and gained 43 per cent of their live weight when put up. Though they gained less in the aggregate than the older ones, the gain per bushel of corn consumed, 5.43 lhs., to 4.59 lbs. for the three-year olds, almost a pound more per bushel. Making the same calculation as in the other cases, we find that these one-year olds cost $61.60, and sold for $121.00, giving a total profit of $59.40. Dividing this by the numher of hushels of corn consumed by the two (120.8 hushels), shows that the corn returned 49 cents a hushel. This average is nearly as good as the best of tbe two-year olds, and three cents a hushel above their average. Another circumstance about these younger steers deserves mention. During the month of May, when all the steers were fed coarse meal iustead of ear corn, one of these yearlings gained 85 lbs., and the other 110 lbs., au average of 97.5 lhs. in 32 days, or over 3 lbs. a day. During this month, while the yearlings gained 195 lbs., the two-year olds gained 105, and the three-year olds just 10 pounds. This seems to indicate—that if the year-olds had heen fed meal the whole time, the gain would have heen greater. It will he observed in regard to all these steers, that they had never been grain-fed until the experimeut was begun, but had made their growth on grass and hay. No such increase per day, or in the aggregate, could be made upon three-year olds well fed from youth up. Gillett's steer, Mammoth, weighed 2,250 lbs. at 24 months, gained only 200 lbs. the next twelve months, and actually lost 5 lhs. the next four months, just preceding the Fat Stock Show of 1883. All the possibilities of profit were gone when the steer was 24 months old. Indeed, the total increase of live weight the next 16 months, cost something like 50 cents a pound. These steers, fed at the College farm, were purposely kept and fed in the manner common among feeders in this State. It is a rough kind of a way, but steers accustomed to out-door life, never stabled or handled until they are put up to feed, do not take kindly to stables and confinement. The great number of those feeding cattle in this State, are not unable to build harns to accommodate them. Indeed, mauy stock-raisers of long experience, hclieve it better to feed steers in a dense grove, situated in a sheltered place, upon dry ground, than in a barn.

Weed-Killing Clod Crusher.

Mr. J. J. Rogers, New Dungeness, Clallam Co., Wash. Ter., sends us sketches of what he calls a home-made "Clod-crusher," but, as will be noticed, he uses it much as a weed-killer. Two strong planks six feet long, six inches wide, and two inches thick, are notcbed as shown in fig. 1, and set four feet



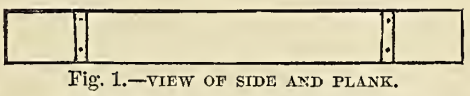


Fig. 1.—VIEW OF SIDE AND PLANK.

apart from their centres. Three planks five feet long, six inches wide, and an inch and a half thick, are spiked on to these, cross-wise, as shown in fig. 2. The augle at which they are set is not stated, hut for ordinary work we suppose forty-five degrees would he about right. Perhaps on some ground they may need a greater pitch back to pre-

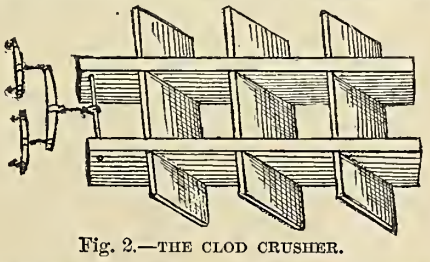
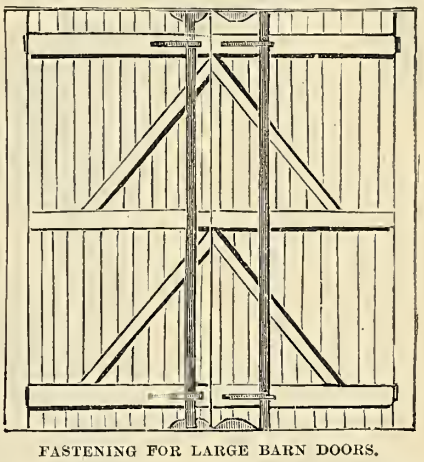


Fig. 2.—THE CLOD CRUSHER.

vent scraping the soil forward. An elevated seat for the driver stands on legs let into the side-pieces about the middle or a little back of it, so as to throw the entire weight evenly upon the three scrapers. Mr. R. writes: "This clod-crusher, made by myself six years ago, is the first I ever saw. Now no farmer here could do without one. We run it over grain as soon as it is harrowed in, and use it upon potatoes when they begin to show through the ground, first running the common spike harrow over them. This covers most of the potato tops witb earth, while it pulls up and kills every weed that may have started. In a few days the potatoes will be ahove grouud again, large enough for the cultivator, clean of weeds even in tbe foulest ground. It saves more tban half the cost of raising potatoes here. Of course the riding or the weight of the rider, will depend upon the condition of the soil. On light ground, too much weight would pull up some potatoes. I am aware farmers in my native place (Chester, Pa.), think this treatment may ruin their crop, hut a trial would convince them of their mistake.

Fastening for Barn Doors.

Mr. "J. H. B.," Port Huron, Mich., sends us a description of a plan for fastening large harn doors.



FASTENING FOR LARGE BARN DOORS.

Use an upright bar, two by four inches, for each door, held in place hy a piece of iron three-eighths by three-quarter inches, hent so as to include the upright, with room to move it past the wedge hy which it is held on to the cross-bars of the door, at the top and bottom. The upright reaches from the floor to the beam over the doors, aud is held in place by driving a heavy nail or bolt into it. Just above the iron bar that holds it iu place, a piece of hard-wood is fastened to the floor, and also one to the heam above, so that when the door is shut and the upright moved toward the edge of the door, the latter is drawn perfectly tight, and cannot warp or get out of place. Either door can be shut and fastened independently by this method.

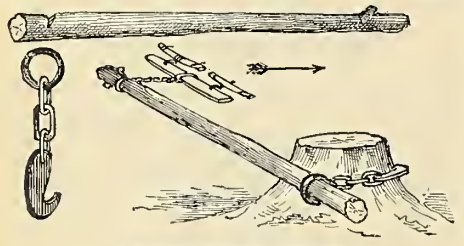
The Propagation of House Plants.

Nothing about plant culture is more fascinating than the multiplying of plants from cuttings. It is the making of a new plaut, and one takes all the more interest in a plant thus produced. Florists, with their propagating benches, turn out plants by hundreds and thousands. Their propagating houses are regular plant factories, in which the raw material of cuttings, is turned out as the finished product—the rooted plants. Several years ago we published a method by which the amateur could multiply his plants in all needed numbers, and with something like the certainty that attends the larger operatious of the florist. The method alluded to is known as "the saucer system," aud, as it will he new to a large number of our readers, we give it in hrief. The out-fit needed is sharp sand—if from the sea shore, let it he thoroughly washed, to deprive it of all salt—and a saucer, soup-plate or other dish, that will bold an inch in depth of sand. Cuttings are made of the tender growth of house plants, an inch or two long, and set in the sand so closely together as to touch one another. The dish of sand containing the cuttings, should he set in a sunny window fully exposed to the light, and the sand, from the heginning must be "sopping wet," and kept iu the

state of mud continuously. If the sand is allowed to get dry, most of the cuttings will be lost, Some cuttings will be rooted in a week, others in two or three weeks. As soon as roots are formed at the base, the cuttings should be potted off in rich, light soil. Shrubs that do not root readily from cuttings of the ripened stem, will often grow readily in the saucer if a tender shoot be taken.

A Stump Puller.

Mr. J. E. Croll, Buffalo, N. Y., sends us a sketch of a very simply made stump puller. He says "I have seen this wrench out some tough old fellows, and with a good team, nearly all stumps with partially decayed roots, can be cleared from a field with it. I think it is not patented."—The only expense

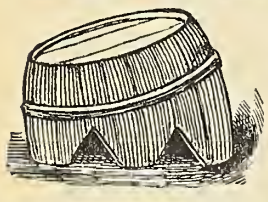


A SIMPLE STUMP PULLER.

is for the chain (links of one-and-a-half to two inch tough iron, or tough-tempered steel); ring (ten to twelve inches in diameter), and the hook—all of which any blacksmith can make. The form of the point of the hook is important, to get it so that it will strike in toward the heart of the stump and not tear loose on partially decayed wood. The lever may be twelve to twenty feet long, its size depending on the quality of the wood, and the man force to handle it. A lever twenty feet long on a stump two feet in diameter, would exert a force of ten tons for each one thousand pounds of direct pull by the team. While many durable, long-rooted stumps would not yield to this, the large majority of ordinary stumps, after decaying a year or two, can thus be cleared out with most of the roots. The whole cost of the pulling apparatus is small, and the operation is very simple.

Improved Barrel Coops.

Barrels, casks, or hogsheads, cut in two, are much used for coops, and are a cheap provision. But instead of the common method of sawing them square across, a diagonal cut, leaving the halves, or the lower part, if but one is made of a single cask of the form shown in the engraving, will be found a great improvement both in shedding rain and in appearance.



Now for Plenty of Lima Beans.

All would-be prosperous, forehand farmers, will have their garden plots planned for during the winter, including an ample store of well-rotted material set aside in the barn-yards, or elsewhere, and decide the amount of and each kind of vegetable, etc., to be grown. Attention enough is not usually given to Lima beans, well called the "king of vegetables," so delicious both in succotash and when cooked by themselves, green or dry, at all seasons. Now is the time to have poles cut, sharpened and piled away, all ready. Every good sized family should have a hundred of these. Those burning wood can select and save many suitable sticks from the summer stock of fuel now in preparation. Cedar or locust poles are best; we have a lot of cedar that have been used for fifteen years, and still as good as ever. But any saplings or nearly straight limbs, two-and-a-half to four inches in diameter at the butts, and seven to nine feet long, will answer for a couple of years or more. Sharpen with a long bevel, so that they can be easily forced deeply into holes made with a crowbar or hard-wood stick driven in two feet or so, according to the firmness of the soil, and worked each way to enlarge the hole to suit each pole.

Lima beans can be grown successfully up to forty-two degrees north latitude, and even much further north, if planted early, and especially on southern exposures. Indeed, they are so valuable that it will pay to grow them, if on the average only every alternate crop fully matures, since the unripe ones caught by an early frost, are excellent when dried in this state and kept for cooking. Last September's early frosts killed many plots, and seed will probably be high this spring, but a quart will plant a large area. A single vine occupies six to eight feet of perpendicular space, and often yields two to three hundredfold. A warm, sandy loam, naturally or artificially drained, is desirable, as the chief growth is during hot weather; but any dry, fair soil, made light and rich with plenty of well-rotted stable manure, will answer. A great gain in time can be secured by starting the seed a few weeks in advance, and the crop will repay the trouble. Provide now a lot of boxes of any thin boards or other material, of tarred paper or pasteboard even, say six inches square, and four to five inches deep. Start four or five seeds in these well in advance, and when the soil is warm, transfer the whole, the roots undisturbed, to the hill. Sods four or five inches thick, with the surface grass removed, cut into six inch-squares, and left together, can in like manner receive and start the seed, and be removed to the hills at the proper time. It will pay to keep fifty to one hundred five or six-inch pots for this purpose, but the sods will cost nothing, and serve nearly as well. At any rate, let every farmer, up to the Canada border, if not over it, have plenty of delicious, nourishing Limas. Any surplus beans will almost always sell for $5.00 a bushel and upward, in spring.

The Langshan Fowl.

P. H. JACOBS.

The recent introduction of this excellent breed has added much to the value of poultry, as the Langshans seem to possess a greater number of advantages for farmers than any other variety. In procuring Langshans, however, it should be remembered that the Black Cochins so much resemble them that only experts are able to distinguish them. But while very similar in plumage they are entirely unlike in characteristics. Langshans, though large in size, mature early, the pullets often beginning to lay at five to six months old, while the Cochins are slower in growth, and do not lay until from seven to ten months of age. Both breeds are black in plumage, elegant in appearance, and grand in carriage. To distinguish them, first see that the legs of the Langshans are similar to those of a turkey, with pink between the webs of the toes, and the bottoms of feet white or flesh color. The skin should be white and thin, in all respects resembling that of the turkey. Any white feathers among the black of the wings or on the body are a defect, though one or two occasionally on the feathering of the feet is not always an objection. The legs are heavily feathered; the comb single and straight, and the eyes and bill dark; the sickle feathers of the tail long and flowing. The size should be nearly that of the Brahma. The Cochin is devoid of sickle feathers, is yellow under the feet and between the toes, has yellow skin, and in shape is more compact and close than the Langshan.

The Langshans do not lay very large eggs, nor sit before laying a fair number, but when they begin incubation are faithful and reliable. The chicks grow faster than those of any other breed, and are generally well feathered in a short time, and so do not have that lank, naked shape so peculiar to the Asiatics when young. If fed liberally the chicks average two pounds at ten weeks old, but in ordinary broods, fed moderately without deprivation, it is best to allow three months for attaining this average weight. Yet as with all other breeds, there are a few objections to the Langshans. The dark plumage and legs are a disadvantage in a market fowl, though the flesh dresses exactly like that of a turkey, being white and quite attractive. Unlike the clumsy Black Cochin, the Langshan can fly over a six-foot fence, which, though not a desirable quality in a fowl, is an indication of activity and disposition to forage. —Crossed on common fowls the Langshan makes quite an improvement, for the size is thus increased without impairing early maturity of the pullets, which is the strongest point in their favor, for they begin to lay nearly as soon as the Leghorns, are larger, and less hard to confine. Crossed with White Leghorns the result is a white fowl with a few black spots, but an excellent layer. The leg feathering, while not necessarily objectionable, is not desirable in wet seasons, but coming from the North of China, the Langshan is hardy, and endures all the temperatures natural to other fowls. They are fine in bone, fine-grained in flesh, and nearly equal to the Games for the table. They are far superior to the Cochins in many respects, but having been crossed with them to a certain extent many yards of Langshans are not strictly pure and free from contamination with blood of other breeds.

Adjustable Portable Scaffolding.

Mr. F. S. Fulmer, Gibbon, Neb., writes us: "I have had a good many helps in my life, and in return I send you a rough sketch of a very useful

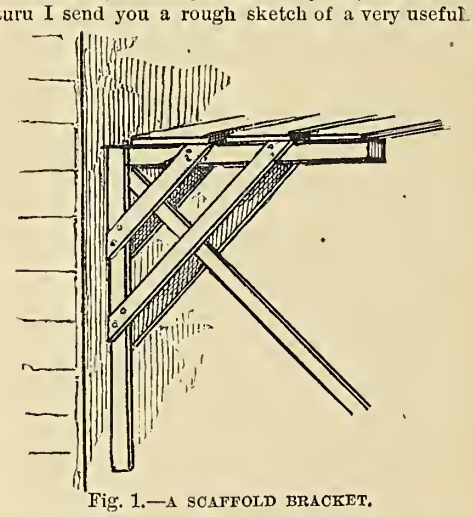


Fig. 1.—A SCAFFOLD BRACKET.

thing I find in common use here, hoping it may be valuable to others. It is for erecting scaffolding in building, or other similar purposes, and is just the thing, easily set in place, with no nailing to the

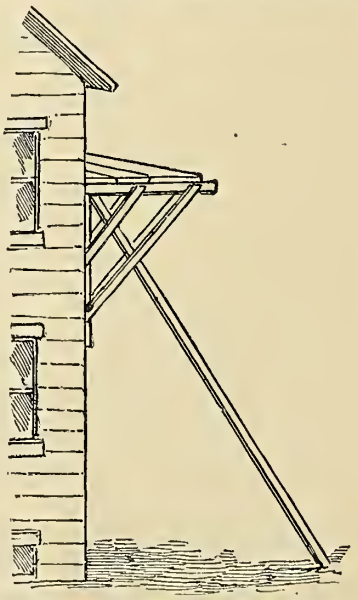


Fig. 2.—THE SCAFFOLDING IN POSITION.

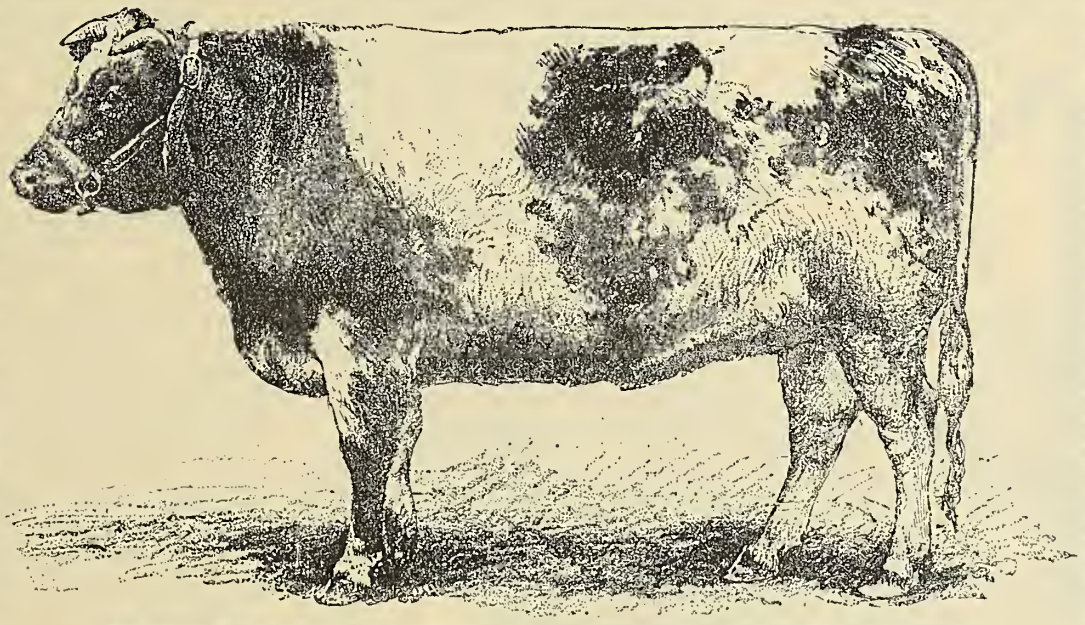
building or marring in any way. It is used in weather-boarding, painting, shingling, etc. A scaffold can be erected or taken down in a very few minutes. In figure 1 is seen a "bracket," and figure 2 shows the scaffolding in its position.

British Shorthorns.

"Lady Pamela," the grand heifer whose portrait we give herewith, is one of a family which has been winning for Mr. T. H. Hutchinson a number of the most coveted prizes. She is roan and white, by the Booth bull, British Knight (33,220,) from Lady Pateley, a cow tracing to the same stock from which others of Mr. Hutchinson's prize winners have sprung. This, it seems, is the "common" unrecorded stock of the country, no doubt admirably selected and really well-bred Shorthorns, though until recently without pedigrees which could be recorded in the Herd-book. Booth bulls have been used to bring up this "Hutchinson family" to its present high standard of excellence, and though their pedigrees are very short they are exceedingly choice. This heifer won first as a yearling at the "Royal" show at Reading in 1881, and last year was awarded the proud distinction of "champion" of all Shorthorn females.

We are fond of long pedigrees in this country, and if the breeding has been long continued in America, we are critical even to over niceness, and much of the talk about "seventeens" and "American Woods" condemns some stock which is probably just as good and much better bred than that from which these now famous "Hutchinsons" sprung. The use we have for Shorthorns in this country is primarily, as beef producers. While their milking qualities are of small account compared with other breeds, these may be cultivated, hence we often find some very respectable milkers among Shorthorns. So it would seem to be the policy of American breeders to select their crosses, as Mr. Hutchinson has done so successfully, from the highest type of beef families—like the Booths. We have some grand representatives of this blood in this country, and they are making their mark in a very favorable way among a number of prominent Western Shorthorn herds.

Lady Pamela is described as without any air of high breeding or special beauty, but as possessed of extraordinary good beef points, grand constitution and great depth of flesh. This is exactly what we want. It is what Shorthorns are bred for, and is really the chief use the country has for them. This loads our railway trains and freight steamers with first-class bullocks; it gives us our finest market beef; it makes reputation abroad for our "prime family mess," and enables us to ship buttocks or "beef hams" going only three or four instead of six or seven pieces to the tierce.



THE PRIZE SHORTHORN COW "LADY PAMELA."—*Engraved after the Agricultural Gazette, London.*

Try the Savoy Cabbage.

The cauliflower, the most delicious of all varieties of the cabbage, is of too much uncertainty to be recommended for the farm garden. The Savoy cabbages are almost as tender as the cauliflower, have a distinct flavor, and a marrowy consistence of their own, which some prefer to cauliflower. These being as easily raised as the common cabbage, are within the reach of all. Those who have cultivated Savoy cabbages need no advice; to those who have not, we say, by all means try the Savoys. The English authors of works on gardening regard them as so different that they class them by themselves, under Savoys, and not among the cabbages. When we first knew them there was but one kind, "the Savoy," now there are a dozen or more Savoys, including early and late kinds. Perhaps the "Improved American Savoy" will be best for those who try Savoys for the first time. Afterwards they will be glad to test the early and late kinds. The seeds are to be sown and the plants treated exactly as those of the ordinary cabbages.

Planting Out Cuttings.

Those who already have grape vines, currant and gooseberry bushes, or quince trees, may readily increase them from cuttings, and the same may be done with many ornamental shrubs. If the grape vines, currants, etc., were not pruned last fall and cuttings saved, do it at once, before growth starts. These prunings, removed for the good of the plant, and its future fruitfulness, afford the means of greatly increasing the stock. The cuttings of some grapes, like the Delaware, and other hard-wooded varieties, do not readily form roots and grow in the open ground, but the Concord and many others take root very readily. Make cuttings of the grape wood two or three buds in length, cutting just below the lower bud, and half an inch or so above the upper bud. Cuttings of currant and gooseberry may be about six inches long, of the growth of the previous year. Quince cuttings may be made of last years' growth, or of older wood, a foot long. If the pruning has been delayed until this spring it should be done as soon as possible after severe weather is over, and the cuttings made from the prunings. As the soil will not be ready for setting them out for some weeks, they should be kept in a cool place and prevented from drying by covering them with earth, sand, sawdust or moss. When the soil is dry and in working condition, the cuttings may be set out. Stretch a line, and with the spade form a trench with one slightly sloping but nearly perpendicular, and of a depth proportioned to the length of the cuttings. These should have the upper bud just at the surface of the soil. Having prepared the trench, lay the cuttings against the straight side of it, three or four inches apart, using a little earth, if need be, to hold them in place, and taking care to have the upper bud just above the surface. Then draw in more soil, to well cover the ends of the cuttings, and, using the end of a piece of board, press or pound the soil firmly against the base of the cuttings; finally fill the trench with soil and press it down firmly with the foot. Recollect that success in growing these plants from cuttings largely depends upon having the soil in close contact with the lower end of the cuttings. Mulching the surface of the cutting bed with leaves, straw, or marsh hay, will be useful in dry weather.

Buy a Grape Vine.

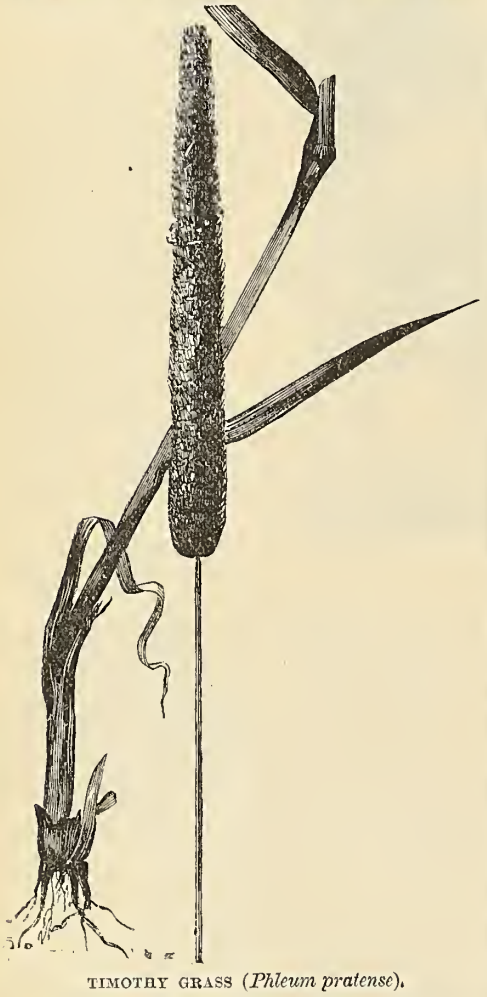
If there is one thing that we have these many years endeavored to secure, it is that the family of every farmer shall have an abundance of fruit. Not fruit now and then, as a luxury, but fruit as a matter of course. Enough for old and young, as much as the children wish at each of the three meals, and a plenty between meals, with some to give to the less provident neighbors. There is nothing in this endeavor that may not be accomplished if we can have the help of those most interested, the farmers themselves. The land can be spared—indeed, it can be devoted to no better use: the labor, after the first planting, can be easily done by the boys, and the girls also may well take a share of it; it only remains to make a beginning. There are few prosperous farmers who can not afford to send an order to a nursery for plants to start an ample fruit garden at once, but we are well aware that few will do so, as they have had little or no experience in fruit culture and are not convinced of its utility or the ease with which results may be secured. Those who hesitate to make a considerable outlay, should begin in a small way. It is very easy to have an abundance of grapes, and they could be had by bushels in three years if a hundred vines were planted this spring. As few have sufficient faith to start with a hundred vines, we say "buy a single grape vine." This will be a beginning, and in time will grow into many vines. We are sure that seeing the success with this one, the fruit that just one vine will produce, its owner will not wait until he can make many vines from this one, but will need no persuasion to procure more vines and of different kinds. If a grape vine is once planted we are sure that it will prove an entering wedge, and open the way to many vines.

To begin with, send to a nursery for a Concord vine. Twenty-five cents should insure a good vine, well packed and post-paid by mail. Our plan does not preclude more than one, but we wish to make sure of one. Of course many grape fanciers will ridicule our choice of the Concord. We want grapes, and plenty of them, and whoever has a Concord vine will be quite sure of these. Concord grapes are vastly better than no grapes. While we cultivate fifty or more better kinds we still believe that the Concord is the best grape for the beginner. When the vine comes to hand it is to be planted. It is well to have it near the house, and if there is a suitable place for it by the veranda or "stoop," set it there. Good, fair, garden soil will answer, and no manure is to be used in planting. The vine will, of course, have a stem and roots. If the stem has more than three buds cut it away at about an inch from the third bud, counting from the lower one. If the roots are over two feet long, cut them back to that length; if less than two feet, cut off two or three inches of the end, at any rate. To plant the vine make a circular hole, of sufficient diameter to contain the roots when extended with the vine in the center. The bottom of the hole should be convex, or rounding, say five or six inches below the surface at the center, and eight or ten at the edges. Set a stake in the center of the hole, place the stem of the vine against it, and spread out the roots in all directions towards the outer edge. If the roots are matted and tangled, carefully separate them; when the roots are prop-

erly spread, throwing a little soil on them; if needed, to hold them in place, cover the roots with the best of the soil, taking care to have it well filled in, leaving no empty spaces among the roots. When the hole is nearly full, press down the soil firmly with the foot; do not tramp or stamp it, but press it squarely. There will be nothing more to do to the vine until growth begins. When the three buds left upon the stem begin to start, rub off all but one, leaving the lowest one, if that is as strong as the others, and if other shoots start during the season remove them. The shoot from the vine is very tender at first, and care must be taken that it is not broken; when it is a foot or so long it may be tied to the stake, using a strip of cloth, or bass matting, and it should be kept tied up as it grows. Try one vine, plant it properly, and watch its entire growth; it will teach how to grow many vines.

Timothy, Herd's Grass.—Confusion of Names.

Names, especially with farm plants, should be definite, and designate certain things. If a plant is called by one name in a certain State and by another name in a not very distant State, and this second name is also in use for a very different plant, confusion is sure to follow. This is the case with the grass widely known as Timothy. When the writer was a boy, the grass was generally known in New England as Herd's Grass. Though Timothy has since come into use in those States, yet there are localities where the name Herd's grass is still retained. To add to the confusion, the grass called Red-top in New England is known as Herd's grass in Pennsylvania. While Timothy is given to but one grass, when our correspondents ask us about Herd's grass we are in doubt which of two very unlike grasses is intended. The grass did not receive the name Herd's grass, as many suppose, because herds of cattle are fond of, and thrive upon it, but because a man named Herd, discovering it growing wild in New Hampshire, brought it into cultivation and notice over a century and a half ago. It is not unlikely that this name, Herd's grass, has the priority over Timothy; but the dates are not given very definitely. The name Timothy comes from one Timothy Hanson, who cultivated the grass in New York State, and carried it to one of the Carolinas. It made its way northward to Virginia, being often called "Hanson's grass" and "Timothy Hauson's grass," until the Hanson was finally dropped, and it became Timothy. In 1760 or 1761 one Peter Wynch took the seeds of this grass from Virginia to England, where, although a native of that country, it for the first time came into cultivation there, and is now regarded as one of the important grasses. This grass has a truly singular history. Not known as indigenous to this country, it must have been introduced from England or some other part of Europe very soon after the English colonists came here. Its good qualities as an agricultural grass were first discovered far from its home, and finally, by way of the Carolinas and Virginia it went back to Europe with its character established and took its place among the valuable farm grasses. To add to the confusion of names, the grass, in England, is called "Cat's-tail" and "Meadow Cat's-tail grass." The confusion often attending the common names for plants, might be avoided by using the botanical names, which are vastly more definite. *Phleum pratense* always stands for one and the same plant, whether it is known as Timothy, Herd's grass, or Meadow Cat's-tail. As to the plants themselves, they are abundantly unlike. Timothy (*Phleum pratense*,) has its flowers in a long narrow spike of the same diameter throughout, like that in the engraving. Red-top, often called "Herd's grass" in Pennsylvania and southward, has its flowers in an open panicle, much like the panicle of an oat, only the flowers are much smaller. The botanical name of this is, *Agrostis vulgaris*.



TIMOTHY GRASS (*Phleum pratense*).

Producing New Varieties of Potatoes.

The tubers will sometimes, though rarely, "sport," and produce a different variety from the one planted, giving the impression that they will "mix in the hill." The only way to be certain of producing new varieties, is to plant the real seeds, those found in the fruit or "ball," that succeeds the flowers at the top of the vine. Each seed in a ball may produce a distinct variety. That wonderful seed ball which contained the seed from which came the Early Rose, also produced several other varieties, some of which were good enough to be propagated. People have been deterred from trying to raise potatoes from the seed by the statement in the books, copied from English writers, that the tubers first obtained were very small, and required several years of cultivation before their quality could be ascertained. Mr. Breese, who was the fortunate originator of the Early Rose, and has had much experience in raising seedlings, informed us that he treated the potato seeds just as he did those of the tomato, sowing the seeds in the same manner, and setting out the plants at the same time. If a seedling did not at the end of the first season show some tubers of an eatable size, he did not bother with it any farther. Some seedsmen offer potato seeds, but unless it is known what variety produced them, we should prefer to wait and secure seed next fall from known varieties, and thus be sure of the pedigree of the seedlings.

The Sunflower as an Oil Plant.

Inquiries have recently been made of us concerning the cultivation of the Sunflower on a large scale for the sake of the oil contained in its seeds. The sunflower as an oil plant is sparingly cultivated in France, and to a greater extent in Southern Russia. In this country, aside from Castor Oil and Linseed very little has been done in cultivating oil-bearing plants. We have now less need of cultivating them than formerly, as the products of petroleum afford a wonderfully cheap illuminating oil, while oil for other uses is obtained cheaply from cotton seeds, formerly a waste product. Abroad the sunflower is not regarded with much favor as an oil-bearing plant, as the yield is only about fifteen per cent. of the weight of the seeds, while cotton seed (hulled) yields fifty per cent. The ashes of the sunflower stem contain a very large amount of potash, showing that the crop draws very heavily upon the soil for one of its most valuable plant constituents and would soon impoverish it.

Forming a Tree Top.

W. D. BOYNTON.

It is of the utmost importance that young trees start out with a well-formed top. They are to stand as monuments of the cultivator's work, perhaps for centuries after his hands have ceased to toil. They may be living green memorials of work well done, or unsightly objects of man's neglect and abuse. Their usefulness depends altogether upon this early training. Low, broad tops for fruit trees are especially desirable, and they very seldom attain them, unless trained with this object in view. Until young trees are finally placed in the orchard, the treatment and way of handling tends to draw the limbs up near the trunk, and unless this is counteracted, they assume an almost vertical growth, giving the tree a narrow and contracted appearance. Such trees are usually unfruitful, and not at all convenient for gathering the fruit. Close contact and rapid growth in the nursery causes the limbs to grow up, and when removed they are tied in the smallest possible bundles, and drawn together in a little knot at the top. Perhaps after remaining there for a week or two, they are untied and buried for the winter, the tops being pressed together unnaturally five for or six months. After all this perversion some even claim that any after-training is unnecessary and injurious, as they will naturally take that form best adapted to their location and its conditions. If the form had not been artificially molded, we could more readily allow nature to execute her own designs; but when nature's functions are usurped, we must carry on the work to completion; the contracted top must be brought back into a natural shape, if we would have a thoroughly fruitful tree.



Fig. 1.

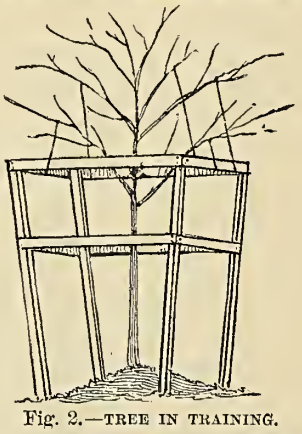


Fig. 2.—TREE IN TRAINING.

Figure 1 represents a tree as it usually comes from the nursery. The trunk is not at all protected by the narrow top, but is left exposed to wind and sun, which work such havoc in the alternating weather of our Northern winters. Figure 2 shows an arrangement for bringing the limbs into proper position. The frame is made by driving four posts three feet apart at the ground, and five feet at the top, their hight corresponding to that of the tree. The cross strips can be cut from batten stuff or any odd pieces on hand. One strip around will do, but two or more increase the solidity and durability, and better protect trees from large animals. Tarred rope or cord is best for tying the limbs

down, attaching them with broad strips of cloth to avoid injuring the bark or contracting the growth. Let the limbs be drawn down gradually, a little at a time, through the growing season.

An Insect Enemy of Fruit Trees.

Next to the quince borer we have found the caterpillar of the Handmaid Moth (*Datana ministra*)



Fig. 1.—EGGS OF MOTH.

the most destructive. It is often found on apple and cherry trees, as well as on the quince. Entire branches of large trees, and even whole trees, if small, are rapidly stripped of all their leaves. The moth fastens its eggs on the under side of the leaf in rows (fig. 1), selecting leaves near the ends of the

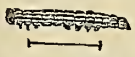


Fig. 2.—BEFORE THE FIRST MOULT.



Fig. 3.—BEFORE THE SECOND MOULT.

twigs where the foliage is tender. Each group of eggs contains about a hundred. They hatch from the latter part of July until late in August, varying somewhat with the seasons. When young they eat only the pulp, dissecting it very carefully from the veins. In a few days they are able to eat the whole leaf; and when nearly grown they sweep everything before them. They feed gregariously, side by side in solid phalanx along the twigs and branches, resting between meals in the same order. In repose each holds its head and tail up in the air, or recurved over the body. When touched or otherwise disturbed they throw their heads spitefully from side to side, at the same time jerking their tails and bending their bodies until their extremities nearly meet. Their bodies are sparsely covered with long and soft whitish or light gray hairs.

Up to the first moult they are brown, striped with white, growing darker with age, and are marked more distinctly at each successive moulting, until at last they are distinctly striped with bright yellow and black (fig. 6). The head is proportionally large and black. The body is cylindrical, with a spot on the top of the first ring. A black stripe runs along the back, and three black stripes alternate with four yellow ones on each side. The whole length is one and three-fourths to two and a quarter inches. The legs are a dull orange-yellow, three pairs under the rings next to the head, then



Fig. 4.—BEFORE THE THIRD MOULT.



Fig. 5.—BEFORE THE FOURTH MOULT.

two rings without legs; next four pairs under as many rings; and then two rings for the tail without legs.

When young they often drop from the leaves, if

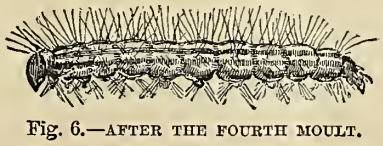


Fig. 6.—AFTER THE FOURTH MOULT.

disturbed, and hang suspended by a fine silken thread. In about five weeks they mature; and, when ready for their transformation, the whole brood leave the tree in a single night, burrow three or four inches in the earth, draw in at the ends and enlarge in the middle until in a single day they cast off their skins and become chrysalids (fig. 7) without making cocoons. They remain in this state until the latter part of the next July, when they come out as perfect moths. The moth measures from one and three-quarters to two and a half inches. In some points the sexes differ. In the male, the antennæ have two rows of fringe beneath, with very short hairs nearly to the tips. In the female, the antennæ are bare. She is larger than the male. Their color is a light brown. The head, and a large square spot on the thorax, are dark chestnut brown. The hairs on this spot can be raised up so as to form a kind of crest. The fore wings are slightly notched on their hinder margin, with four dark transverse lines in the males, and often five in the females, with one or two dark brown spots near the middle; and a short, oblique, dark line near the tips. One, and sometimes both, dark spots are wanting on the forewings of the males. In repose, the forelegs are always stretched out before the body. It is very important to destroy these moths before they lay their eggs on the leaves; and if the broods are hatched and commence eating the leaves, no pains should be spared in destroying them as soon as possible. We have once seen a pair of flies a little larger than the common house-fly (fig. 8), busy



Fig. 7.—CHRYSALIS.



Fig. 8.—PARASITIC FLY.

stinging the full-grown caterpillar. The illustrations will aid in recognizing the caterpillars in all the stages of their life history and so help to more effectually destroy them. Figures 2, 3 and 4, show the caterpillar before the first, second and third moults, respectively, figures 5 and 6 before and after the fourth moult, when ready to change.

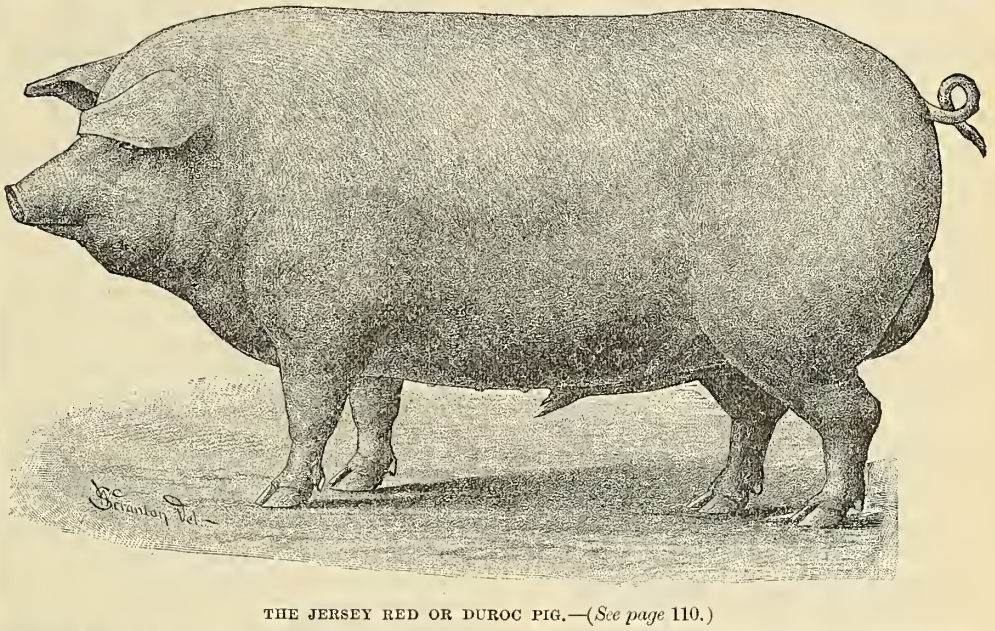
The Lawn, and How to Make It.

It makes no difference how much may be expended upon trees and shrubs to ornament the ground—by which we mean a large pleasure ground, or a small front yard—if these are not set off by a fine turf, the effect will be lost. In all improvement, whether of a village front yard, or a home park, the groundwork should be grass. It has been well said, that the lawn is, outside, what a carpet is within the house, the setting which improves all the rest. The lawn is not merely a small meadow near the house, to be mown for hay. It is a piece of grass given up to ornamentation solely, and should be made and maintained with no other object in view. To answer the numerous inquiries that come with each spring, we give a few points that should be observed in successful lawn making.

THE GROUND.—The lawn is to be permanent, and as several crops of grass are to be taken each year, the most important part of lawn-making, is the preparation of the soil. A small lawn should be perfectly level, but if it is several acres in extent, a gently undulating surface is desirable. Drainage being secured, the soil should be prepared as thoroughly as if for a garden. This means deep working, fine tilth, and as much well decomposed manure as can be spared. After thorough harrowings, the surface is to be finished with rakes, to remove all the stones that these will take off. If there is no use for the stones dig holes, and bury them in the soil of the lawn.

TURFING THE LAWN.—If good sods, from a well cropped pasture, a common, or the road-side are to be had, it is better to turf a small grass-plot than to sow seeds. Sods are to be cut a foot wide, using a board as guide, and a spade ground sharp to cut with. The sods may be made into rolls as large as can be handled, and laid down very rapidly. Before laying the sods the surface should be made firm by rolling, or by beating it with a pounder made of a piece of plank. In laying the turf, bring the edges in close contact, fill up the vacancies with bits of the sods, and if the edges do not fit closely, fill all openings with fine soil. After it is laid, beat the sod down firmly with the pounder, or back of the spade. If the weather is dry, give a copious watering every few days until rain falls.

GRASS SEED—WHAT KINDS?—Many years ago we paid a high price for "French Lawn Mixture," which claimed to be the mixture used in the lawns



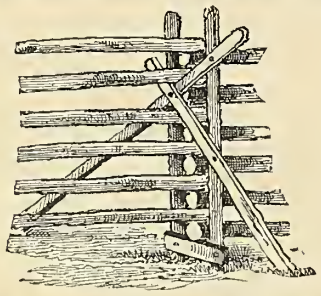
THE JERSEY RED OR DUROC PIG.—(*See page* 110.)

about Paris. This was such an utter failure, that we have not tried any so-called "lawn-grass" since. What is known as the "Central Park Mixture," is recommended by good authorities, but we have not tried it, being content with one kind of grass, with a little White Clover, say a quart of white clover seed to the bushel of grass seed. For light soils, Red-top—especially the variety called Rhode Island Bent, with the clover, makes an excellent turf. For strong soils, especially those in a lime-stone locality, June-grass, or as it is more generally called, Kentucky Blue-grass, is best. This with the White Clover, will make a perfect lawn. Several of the grasses so desirable in the lawns in England, perish under our hot suns.

HOW MUCH SEED?—SOWING.—Grass-seed varies so much in quality, that it is not surprising that different authors recommend from two to eight bushels of seed to the acre. Two or three bushels are enough if the seed is good, and the larger amount is hardly sufficient if the seed is largely chaff. Blue-grass seed is often excellent, and again so poor, that it is difficult to find a good seed among the chaff. The price is variable.

Farm Fencing.

Fences are a necessity, and nothing detracts more from the looks of a farm than a poor fence, especially a neglected zigzag or "snake" one, with its corners a mass of weeds or litter. In many of these there is abundant material to make a good straight fence. A good deal of the work can be done in winter or early spring days, and on rainy ones. Figure 1 shows a portable "Fence Jack," very useful on wet land where posts heave, around stacks, and for general fencing. It can be made of pieces of rails or poles, or any lasting timber; the pieces are from five to six feet long. A short foot piece is first shaped, and then fastened on with five or six inch nails as required by the size of the pieces. The mode of laying in



Figs. 1.—FENCE JACK AND ITS USE.

the running rails or poles, is shown in figure 1. The feet of the jack rests on the soil, but sink into it a little, giving firmness. I have this in practical use, and find it very serviceable.

Figure 2 is a fence made of either sawed stuff, or of rails or poles, having their ends flattened and bored. An iron rod or piece of gas-pipe, anywhere from half an inch to an inch in diameter, is run through the holes, and down through a base block into the ground as far as necessary. A round stick of tough durable wood, an inch or more in diameter, will answer. The size of this rod and its strength will depend upon the amount of zigzag that is given to the lengths. If the corners are one foot on each side of a central line, the fence firmly held together by the rods, will in effect stand on a two feet wide base. Less than this would per-

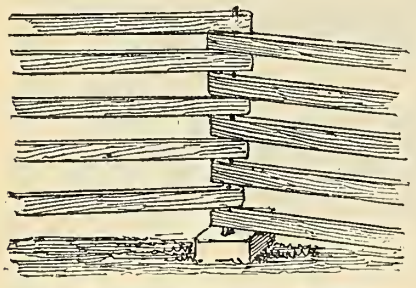


Fig. 2.—FENCE FASTENED BY RODS.

haps sometimes answer, and there are no sharp corners, or deep recesses for rubbish.

Figure 3 is a fence in which round poles or small rails are combined with barbed wire, the former used both for part of the fence, and to be seen by animals that would otherwise run against the

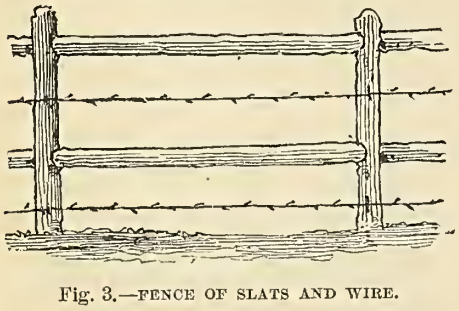


Fig. 3.—FENCE OF SLATS AND WIRE.

wires. The ends of the rails are rounded to fit into two to three inch auger holes, bored either through the posts, or two to three inches deep on each side. Rails or poles too small for other purposes, may be used for such a fence.

Figure 4 is designed for a wind-break fence. For the temporary fence, two or more wires plain or barbed are used, and along these, a foot apart or so, willow cuttings sharpened, are set in line, and cut off to uniform hight. The larger these are the better, even to two or three inches diameter. This form is more especially for wet soils, where any willows flourish well. They will soon sprout, fill the space, and form a live fence. I have seen white willow growing well on dry soil. J. BARTLETT.

A Crop of Early Potatoes.

Of course, to have a crop of early potatoes we must have an early kind. There are now so many varieties, each claimed to be a day or two earlier than any other, that we do not venture to say which is the very earliest. Our own planting will be, as it has been for several years past, of the Beauty of Hebron and the Early Rose for the main reliance. We usually try, in comparison with these several new varieties for which claims are made. We have no doubt that there are kinds some days earlier, but the Beauty of Hebron is as good as a potato can be, is productive and of even size. The Early Rose has been surpassed in earliness, but we doubt if in the general combination of good qualities. It is an excellent standard with which to compare new-comers. We plant it in part in acknowledgment of the great good it has done. Those who can recollect the gloom which

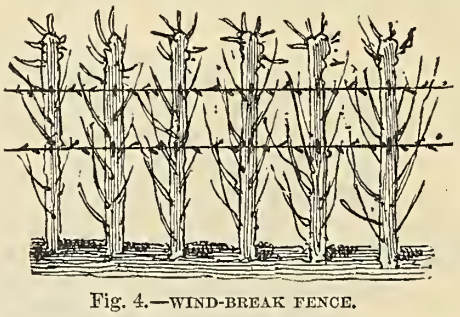


Fig. 4.—WIND-BREAK FENCE.

hung over the potato prospects about twenty years ago, and the change came with the advent of the Early Rose, will understand this feeling. Potato culture took a sharp turn for the better, and the Early Rose was the leader in a long procession of new and excellent varieties. Whatever early potatoes we may plant, we may make them earlier by proper treatment of the seed. A potato is only an underground stem, and when we cut it into sets, we only make what corresponds to cuttings of ordinary above-ground stems. It is found if the tuber, the potato, be brought into the condition of an ordinary stem its buds, the eyes, push sooner and are more vigorous. On the Island of Jersey early potatoes for the London market are an important crop. The preparation of the seed for the next year is commenced as soon as the crop is dug. Shallow boxes are provided, two feet long by one foot wide, with sides two inches high. At each end is a frame work made of two corner posts seven inches high with a cross strip at the top. These end frames allow the boxes to be stacked upon one another and leave plenty of room for air and light. The potatoes for seed are set close together in these boxes, "seed end" up, and left out of doors in any convenient place with full exposure to the light. After a while the potatoes become thoroughly green, and a few short, thick sprouts are formed. When the weather becomes cool the boxes are taken in and stored where they will not be frozen. At planting time these potatoes are set upright in the furrow; being well provided with sprouts that have only to continue their growth, much time is gained. It is worth while to try the experiment, even as late as this, and expose the seed potatoes to light and heat. In the Island of Jersey whole potatoes are planted, but it would be well to try cutting the seed, leaving one or two sprouts to each piece, taking care not to break them.

A Questionable Blessing.

Rev. J. G. Wood, the Naturalist, in a late number of "Longman's Magazine," makes a plea for the mole. He cites evidence to show that this commonly considered pest is in reality a blessing to farmer and gardener, in destroying worms, larvæ, pupæ, and ground insects; in aërating and draining the soil with his burrow; in lifting the under-soil to top-dress the surface-soil, etc., etc. By the same reasoning, as every creature has its uses, not one should be destroyed; and the pious Brahmin who never kills beast, bird, or insect, is sensible and humane. But this parity of reasoning is a poor consolation to a man stung by a wasp, bitten by a snake, or devoured by a tiger; and the humanities are quite wasted where they are in direct antagonism to man's economies, comforts, and necessities. The question is one of compensation, certainly, so far as the mole is concerned. If, like the crow, he only did a very little harm to a great deal of good, no farmer or gardener would anathematize him; but, to see all my lawns and terraces so completely burrowed and aërated as to be seamed with lines of dead grass; to have my rose-borders honey combed with tunnels that kill the growth of the now vigorous plants; to have my garden so ridged as to destroy the peas, beans, and beets, as effectually as if a fire had passed under the rows; to have rod upon rod of the choicest strawberries lifted from the ground—all this makes me think the benefactions of the mole are of the *non sequitur* order. The richer the land, the more worms; so the penalty we pay for free manuring is—moles. Once in the soil, by natural selection and survival of the toughest, he stays, and woe to the succulent and savory products of that field or garden where the mole has his habitat. And, as the increase of this benefactor is in proportion to his undisturbed occupancy, the alternative soon is—root out the benefactor, or abandon the soil. Mr. Wood would have the mole remain to root out the grubs, but I much prefer the grubs to the moles; so the order on my place is to "turn the rascals out," to kill and destroy by every means possible.

And here let me add—what a delusion and a snare are the patent mole-traps now on the market. With me not one is effective. If one does occasionally pin a mole in its run, it is, as a rule, provokingly inefficient. My remedy is—poison. I taint a bit of raw beef with Fowler's solution of arsenic, carefully uncover the run, drop in the beef, re-cover the opening with a board, and the work is done.

O. G. V.

Spring Work Around the House.

The first work will be to repair the damage of winter. If storms or accumulations of snow have broken the branches of any trees, the broken limb should be cut back to the trunk, and the wound covered with paint or grafting-wax. Improvements and alterations should have been well considered during the leisure of winter, and be ready to be executed as soon as the ground is open. New roads and paths should only be made where they are needed. It is a mistake to cut up the ground with useless paths; they look very pretty "serpentining" on a plan, but cost a deal of work to keep in order. Thorough work is required on all walks and drives. Neither can be made permanent without a good foundation. Where stones are at hand, excavate the bed and throw in the largest stones first, adding the smaller ones above, and finish with gravel. In localities where there are neither stones nor gravel, coal ashes is the best material; spread the ashes upon the surface, adding a little soil to make it bind, and form a compact, hard surface. While flower beds are greatly improved by being framed in the green of the lawn, the lawn is by no means improved by being cut up too much by flower-beds. If one or the other is to be in excess, let it be the turf. Plant ornamental trees and shrubs early, and cut back the top in proportion to the loss of roots. Maple, elm, and other trees from the woods, lose their fibrous roots to such an

extent, that they are quite sure to die if planted with their entire heads. If these trees are made into bare poles, cutting off every branch, they will be quite sure to live, and will form a new head in a very few years. Laurel or Kalmia, one of our most beautiful broad-leaved evergreens, is regarded as very difficult to transplant. If every branch is removed at the time of transplanting, so that not a leafy twig remains, it is quite sure to succeed.

Let Us Have More Stocks.

By "stocks," we do not refer to those of Wall street, but to those charming flowers which were among the chief ornaments of the flower garden a few generations ago. The more recent Verbenas, Petunias, and other more showy introductions, have crowded aside the Stocks, the Wall-flowers, the Daffy-down-dillies, and other old-fashioned fragrant flowers. We wish that our horticultural societies would offer premiums for Stocks. They offer prizes for Orchids, which can only be grown by the wealthy, and offer no prizes for Stocks and other flowers which every one can grow—those dear old favorites, which bring to us the odors that delighted the garden-lovers of former generations. The "Stocks," as they are now called, were the "Stock gilliflowers," or "gillies," of the older gardens. They were favorite flowers with that eccentric statesman, William Cobbett, who, during his sojourn on Long Island, took much pleasure in cultivating them. He writes: "If I were to choose amongst all the biennials and annuals, I should certainly choose the Stock. Elegant leaf, elegant plant, beautiful, showy and most fragrant flower." The Stock has not changed since Cobbett thus praised it, and we know of no flower more worthy of attention. There are several kinds of stocks, but the so-called "Ten Weeks Stock," is the kind we have in mind. A packet of mixed seed will make a great variety, but those who are willing to pay for them can get separate colors. The flowers may be had much earlier by sowing the seeds in a window box, and when an inch or so high, transplanting them to another box. When the weather becomes settled, plant them out in the garden, setting a foot apart each way. To get a fair share of double flowers, make the ground very rich. But let us by all means have more Stocks.

Root-Grafting of Shrubs.

Sometimes a shrub is found to be difficult to propagate by cuttings of either the old wood or of unripe shoots. When other means fail, root-grafting will usually succeed. A fragment of root is taken as a stock, and the cutting is inserted as shown in the engraving. If the root is large enough, cleft-grafting may be practised, or if the stock is too small for that, the cion may be attached by whip-grafting. Root-grafting is very useful with those varieties of the grape which refuse to grow from cuttings, such as Norton's Virginia, and related kinds.



GRAFTING ON ROOT.

THE TIME FOR GRAFTING.—Those grafters who go about the country grafting old orchards desire to make their season as long as possible, and they extend it at both ends. In February they claim, "the earlier the better," and in May find good reasons for preferring to set grafts as late as possible. We would answer several inquirers by saying that we have always had the best success with grafts set just as the buds on the stock were swelling. A cion inserted in February is exposed to the drying winds of early spring. Until vegetation commences in the stock this loss of moisture by the cion cannot be made up. A great many grafts are lost in this manner, they actually perish in the cold dry winds. If obliged to choose between grafting in the end of winter and when the trees were in full bloom, we should prefer the latter time for the operation for all fruit trees save cherries and plums.

Spring and Summer Chicken Coops.

Mr. J. D. Woodhull, Barnesville, Ga., sends us a sketch of his chicken coop (fig. 1) for chickens in spring. A frame is made of two by four-inch light stuff for rafters, spreading two and a half feet at the bottom. The ends and rear are boarded, and the front has a foot-wide board at the top, with slats two and a half feet long covering the lower one and a half foot. The slatted side is turned toward the sun, but from it in very warm or hot weather. We add sketches made from a variety of other forms which we have seen at various times in different places. Figure 2 consists of boards two feet wide running a little over two similar



Fig. 1. Fig. 2. Fig. 3.

boards on the other side to shed rain. The rear is boarded, and the front also about one-third the way down; the rest has lath nailed across at proper distances. A narrow cleat across the bottom and top holds each pair of side boards together. They should fit closely, or be tongued and grooved or battened to shed water. This is preferable to fig. 1, as rains will drive in less. It is

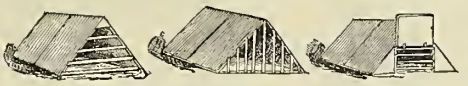


Fig. 4. Fig. 5. Fig. 6.

quickly cut and nailed together without any frame. The engravings show different methods of closing and slatting the fronts. Fig. 6 is similar to fig. 2, but is boarded at the lower front corners, and a hinged cover, shown turned up, is let down during very cold nights, and in storms. The hinges may be bits of leather. The size in all these forms will depend upon the breed, or size of the hen, and room required. When skunks are troublesome, a bottom board will be needed, and strong slats. For ordinary use common lath will answer. An hour's work will make almost any of these forms.

The Back-Yard.

It has been said by some one that the back-yard is the true criterion of the refinement of the house-dwellers. So many things drift around to the back-yard, and in such a free and easy way find a lodging there that it requires a sharp eye and skillful hand to keep this place in trim. Not only must all useless and uncomely rubbish be carefully kept down for appearance sake, but the sanitary state of the back-yard needs careful looking after. If your home is in the country the impure water from house and kitchen, and wash tub, should never be poured on the surface of the ground near the house. This is a vexatious point, especially if one keeps a servant. The average domestic believes and stoutly maintains it by her works, that water of any description is properly disposed of when emptied on the ground, the nearer the house the better. "But in cold weather may we not?" asks my friend. Nature works while you sleep, and while the earth is frozen, and if you give her foul materials to work with her mysterious chemistry is almost sure to evolve something which in the coming bright spring days, or languid summer-time may smite you, or some of your household, down to sick beds. The pails of soiled washwater and soapsuds emptied too near your dwelling week after week, may not be remembered, but in the shape of miasma, or tainted drinking water, will, like "curses have come home to roost." In my own back-yard—out of sight of the house—we have a homely reservoir, and deodorizer in the shape of a pile of ashes.—A hollow in the middle receives all slopwater; impurities of which are absorbed by a daily covering of ashes from the house fires, and an occasional sprinkling of lime. In due time the whole pile becomes a fertilizer for the garden.

An authority in domestic matters tells us if we "take care of the back-yard, the front will take care of itself;" and the longer the writer keeps house the more ready is she to witness to the truth of the saying. LUCY F.

Garden Trellises for Vines.

EBEN E. REXFORD, SHIOCTON, WIS.

A honeysuckle or climbing rose needs some support to display itself to the best advantage. When, as usual, they run on and through a fixed trellis, it is very difficult to take them down when cold weather comes, and I do not grow climbing roses or other large plants of like habit about verandas, but prefer such vines as the clematis or Wistaria for this, because of their more graceful habits and greater tractability. Roses and honeysuckles, and the like, are more satisfactory on the lawn, left to their natural development, having only a central support. I have a simple trellis in use which I find quite satisfactory for lawn and garden. It is made of a straight-grained pine board, slitted into thin strips as in fig. 1. These are bent curving outward to each side, and held apart by tacking one or more thin strips across. The bottom part, left unslitted, stands between two side stakes, and an iron rod passes through them and edgewise through the base of the trellis. It is kept upright by tying the bottom post, or driving one or two stakes on the side or on two sides of the bottom pieces. By unfastening this, the trellis will turn down on the rod.

Another plan is to make the bottom piece longer and run through two iron or wooden pins as in fig. 2. A simpler way still for a smaller trellis, is to leave the bottom piece longer, fig. 3; sharpen it and thrust it in the ground with no side stakes, and if desired to lower it remove the earth from one side, if it can not be drawn up without breaking the plant. We have used these of various forms and sizes, from a foot up to six feet high, and for most plants painting them dark green. They are on sale at most horticultural stores and some others, but may be easily made at home, and this can be done well the present month, to have them in readiness. The main thing is to have straight grained, strong wood, so that when sawed into thin strips they will not break on bending out to any desired curve and spread. The thickness of the strips will depend upon the hight, the quality and strength of wood and the amount of vines and

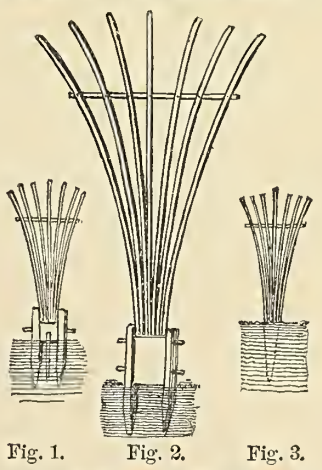
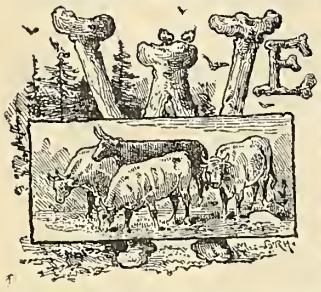


Fig. 1. Fig. 2. Fig. 3.

foliage to be supported against strong winds. A very pleasing rustic trellis may be made from the top of a red cedar. The branches should be cut back, leaving the lowest ones eighteen inches long, the others gradually shorter. It may be used with the bark on, but will last longer if peeled and receives several coats of crude petroleum.

Editorial Notes on the Road.

Among the Western Cattle Ranches.



RODE all day westward from Chicago with Mr. ———, a merchant of Boston, Mass. He had not long ago been persuaded to take "a flyer" in cattle, and his few head had now increased to thousands on the wild lands north of Kearney, Neb. The entire herd, however, had just been sold to a joint stock company with a wide range north of Cheyenne, Wyoming Territory. The merchant was now going to spend his three weeks' summer vacation in accompanying the drive from Kearney to the new range, where the cattle were to be delivered. His young wife accompanied him, and thought she should very much enjoy the novel experience of going three hundred miles over the prairie with the drivers and herders, riding on horseback during the day and camping in a covered wagon at night. There is nothing more enjoyable and health-restoring for ministers, collegians and others seeking rest, recuperation and adventure than to join one of the summer cattle drives. They can go as herders, receiving good wages, or as guests, which they can always do by paying their pro rata of mess expenses, and supplying their share of game and trout. To-day it is antelope on the Big Horn, to-morrow magnificent trout from the Cache Le Poudre. Every spring herds of young cattle are purchased in Northern Utah and driven eastward to Wyoming Territory.



Consolidating Cattle Ranches.—As in railroads and other enterprises, centralization is now a great feature of cattle raising. The work of consolidating ranches is rapidly going forward, and whether for gain, mutual protection, or what not, many of the ranchmen appear to be quite willing to sell their rights, franchises, and cattle, to corporations, receiving their pay in company stock. A companion of the writer in whilom expeditions through Colorado and Wyoming, has sold his ranche and cattle "on the Sweetwater," to an English Company, for a hundred thousand dollars. A colossal Colorado Cattle Company is now apparently aiming to absorb the ranches and cattle lying between Denver and the Kansas border. Only last week the Company paid a quarter of a million dollars to one ranchman, sixty miles east of Denver, for his claims and cattle. Mr. Burnham, the Land Commissioner of the Union Pacific Railroad, recently told the writer that he had just received a proposition from the manager of a cattle company, to purchase the remaining unsold land of the Union Pacific Grant, for a mammoth range. According to the official report just made, the unsold lands amount to over eight millions of acres—a rather good sized ranche!

University men and under graduates still dream of this to them charmed life, which appears to possess a special fascination for educated young men. I have encountered these college graduates, now turned cattle or sheep raisers, all over the far West, from Manitoba on the north, to New Mexico on the south, and I have yet to find the first one to say that he was weary of the life, and desired to return to civilization. Whether collecting and driving two-year-olds from Minnesota, through Dakota to the Black Hills, or tending vast herds in northwestern Nebraska and Wyoming, or living in their "shacks" or dug-outs along the Little Laramie, or gathering in their missing sheep after a furious snow storm in the Kiowa Valley, or loping from pasturage to pasturage with their gentle flocks in the more sunny climes of south-western Kansas and Southern Colorado—these college graduates tell you that they are happy. And they appear to be so in their cow-boy costumes, with their simple fare, entire freedom, and handsome profits—that is, when prolonged winter snows, or waterspouts, or disease do not decimate the herds and flocks.

This centralization now so rapidly going on, must necessarily bar out these college aspirants for ranch life and adventure. As the cattle and sheep now become concentrated in the hands of professionals, they will want to conduct it on business principles, hiring at lower wages regular cow boys, and so monopolizing the land generally as to afford little show for eastern boys, who now, with a few cattle or sheep are their own masters, and come and go at will. Assuming that they could find employment in the large companies, the boys would not consent to become mere serving men, taking orders may be from rough, unlettered superintendents, and losing their entire independence. The whole charm of the life would then be gone. We may reasonably conclude, therefore, that there will soon be an end to leaving college for cattle raising on the plains.

On to the Front.—'Twas but the other day—since autumn grains were harvested—we rested an hour at the prairie home of an old *American Agriculturist* subscriber in Western Minnesota, Lyon County, near Marshall. His large farm looked prosperous, and to all appearances Mr. D—— had located for life to grow up and grow old with this new country, Now comes a letter announcing that he is again on the move. En route, he sends the address of the new home to which he is journeying with family and flocks, and if we wish to shoot prairie chickens over his splendid dogs another autumn, we must come on to far away Washington Territory. I am not surprised, for he evidently belongs to the class of sturdy pioneers who always want to push on to the front. Of them it is figuratively told beyond the Missouri that they become restless if a neighbor moves in within five miles of them. It is getting too crowded! They must have more room and so press on to prairies new! While, of course, this is exaggerated, there is a large class of pioneers who always want to be in the advance, and so it is that you find the front is settled with people from those States nearest to the front. Those who went from Ohio to Illinois, and then to Iowa when Iowa was new, are now pulling up and going to Dakota. Then when Dakota and Nebraska and Kansas are old, well-settled States, these same restless spirits will be found in the Indian Territory, in Washington Territory, in Montana, and perhaps in Oregon. They enjoy the excitement of being first on the ground, making the first selection and breaking the maiden soil, just as our fathers back here in the Middle States took pleasure and pride—hard work though it was—in felling the forests, working the fresh clearings and building their log cabins. Now, as then, these adventurous, restless spirits constitute a most valuable factor of Western growth and civilization. They are the advance guard, the charging column who drive off the Red Skins, overcome natural obstacles, and make ready the ground for the sturdy yeomanry who are to follow on their trail.

Where Mules are at a Premium.—The national prejudice against mules, very materially softened during war times, when they performed herculean tasks, and often brought up commissary supplies, but for which Union and Confederate would often have slept supperless after long marches, or on hard fought battle-fields. They were as stubborn as the soldiers on both sides, but equally as patient and long suffering. To appreciate just how much a pack mule can do, one should see him starting out for a journey through defiles and over the mountains of Colorado. It is no exaggeration to say that two or three of them will carry sufficient goods from the plains for the owner to open a respectable sized store back in some mountain hamlet, and they present a droll sight indeed, as they start off in single file, loaded and fairly covered with hardware, tea chests, pots, kettles, hats, shoes, etc., etc. They are, so to speak, the connecting link between civilization and frontier outposts and settlements which have no railroads or wagon routes.

No Doctors Need Apply.—We are told that hitherto doctors have not prevailed in Serbia, but that wise women, called Babas, claiming to have an intuitive knowledge of healing herbs, etc., have acted as physicians. When a patient is suffering, for example, from congestion of the lungs, these female physicians administer three apples grown on the same bough. If this does not effect a cure, then the sufferer lies on his stomach, while the women sprinkle salt over him, and utter cabalistic words. This mode of treatment is not more amusing than many resorted to among some remote superstitious neighborhoods in the timber regions of the far West, to which doctors have not penetrated. For instance, in one timber clearing, where we spent several weeks, the accepted cure for scrofula was this: Cut a lock of hair from as near the top of the sufferer's head as possible. Go into the dense forest, bore a hole with an auger into the heart of a large healthy elm tree, fully ten years old. Having deposited this lock of hair at the extreme end of the hole thus made, insert a plug of wood, and when the bark of the tree has grown over the plug, the disease will leave the sufferer! This was generally believed in the settlement to be an efficacious cure for scrofula. But barring superstitions of this character among back wood's settlers and frontiersmen, many of them possess a remarkable knowledge of the healing virtues of roots, herbs, plants and flowers, a knowledge rendered necessary owing to the distance and difficulty of procuring medical attendance. The Indian herb doctor commands as much respect and observance in some tribes as the chief himself.

Romance and Reality.—Mr. Iliff, the great cattle king of Colorado, died during one of the writer's visits to his section of country. His name, his wonderful success, and his thousands of cattle were the daily topic of conversation and envy of every ranchman. Death came suddenly upon Mr. Iliff in the midst of his success. His widow, who but a few years ago ran a sewing machine for a living back in the States, was left one of the richest of women. Now comes word that Rev. Dr. Warren, whose ministry in Brooklyn, and elsewhere East, endeared him to a large circle of friends, has, as Bishop Warren, aged sixty, won and wedded widow Iliff in Colorado. The Bishop's many friends may well congratulate him on his good fortune. D. W. J.

Chat with Readers.

The Management of Large Stones.—A friend at Newcastle, Del., gives his method of removing large stones from the fields. A trench is dug around the stone, and in this a fire is built of any rubbish or trash at hand. Our correspondent says that the heat opens the seams in the stone and it may be easily broken apart into pieces suitable for use in building, etc.

Roof for a Poultry House.—*D. H. Davis*, Mitchell, Ind., asks us "which makes the best and cheapest covering for poultry houses?"—If the house is to be permanent, it should have a permanent roof, such as shingles, or tin or other metal roofing. A number of roofing materials are advertised; these are of paper or some coarse fabric impregnated with some water-proof composition. We have had no experience with these of late. Some twelve years ago we tried some very popular at the time, and do not care to try any more.

Nest Eggs.—*Wm. K. Deisher*, Berks Co., Pa., gives us his method of making nest eggs. This is not new, but it will no doubt be useful to many readers. "I use only good sized eggs, with strong shells. I make in the small end a hole about an eighth of an inch across, and in the other end a half inch hole. By blowing through the smaller hole, the contents of the shell will be driven out. Plaster of Paris is mixed with water, thin enough to pour. The shells are to be filled with this, using a spoon to fill them if necessary. When the shells are full, they are set aside for twenty-four hours. Trim off any superfluous plaster with a knife. These eggs are in appearance exactly like real eggs, and being heavy, are not thrown out of the nest.

Leaves as Manure.—*W. S. H. Hale*, Elk Creek, Va., asks us if leaves are of much value as manure, and how they can best be turned to account when one has nothing to mix with them. Muck and woods-earth, so highly valued as fertilizers, are essentially decomposed leaves, and leaves, if completely decomposed, would have a similar value. Leaves by themselves, thrown into a heap, kept moist and occasionally turned, will decompose, but very slowly. They need the contact of fermenting material to cause them to decompose rapidly. The usual method is, to treat them with stable manure; one part to two parts leaves. If hot-beds are used, this mixture of manure and leaves gives a more gentle and managable heat, and are preferred to clear manure. Without the aid of fermenting manure, the leaves must have time to decompose and make them available.

The Manure Heap.—"*A Subscriber*," Evanston, Ill., asks us if we advise throwing all the washing water and slops from the house upon the manure heap. This is uncovered, and added to daily by that which is thrown out from the stable. The reply to this would depend upon the size of the heap, and the quantity of liquids supplied by the house. The heap may be injured if too dry, by burning or "fire-fanging." If, on the other hand, it is too wet, the manure will be shut out from the contact of the air, and consequently can not decompose, and will remain unchanged. The liquids from the house may be in such excess as to cause a washing away and waste of the soluble portions of the manure. The house waste should be utilized, but be under such control, that they may be added to the heap in the needed quantity.

Cranberry Culture in Nova Scotia.—"*H. S.*" writes us from Kings Co. that he proposes to engage largely in cranberry growing this spring, and asks us to send him the names of practical cranberry growers with whom he can correspond. He says that bog lands, with muck from six inches to two feet deep, can be bought at from twenty-five cents to five dollars an acre, but with poor facilities for flowing. Unless the ground can be flowed at will successful cranberry culture is not possible. The best advice we can give "H. S." is to procure "Cranberry Culture," by J. J. White. We do not recommend this work because it is published by the Orange Judd Company, but for the reason that it is a most complete work, giving just what the novice wishes to know, the conditions necessary to success more in full than any other work on a special culture with which we are acquainted.

Shells for Poultry.—*A. H. Davis*, Mitchell, Ind. In view of the fact that oyster shells are largely and beneficially used for poultry, asks if "the shells of the common mussel, so plentiful in our western rivers, will not answer in place of oyster shells for poultry." He can get any quantity of these shells by hauling them from the river, while the transportation on oyster and clam shells would make them very costly. This is one of the questions that must be answered on general principles. Shells, whether of the salt water oyster and clams, or of the fresh water clams or mussels, known to naturalists as *Unios* and *Anodous*, etc., have essentially the same composition. Shells consist of carbonate of lime, with which there is more or less animal matter. The animal matter in oyster shell is less than one per. cent. Probably that in fresh water shells is more, but we doubt if there is any appreciable difference. If near the coast, where oyster and clam shells go to waste, we should use them; if in an inland locality where fresh-water shells would be cheapest, we should use them, with no doubt that they would be equally useful.

Pruning Evergreens.—*J. A. Scott*, writes us that he some years ago set out a number of Norway Spruces, which are now three to four feet high. He wishes to know if it will injure the trees to cut back the branches about one-third this spring. If pruning will injure them, he would like to know what to do with them. Not long ago it was supposed that evergreens could not be pruned; now it is a common practice. There is one kind of pruning that should never be given; removal of the lower branches. Our correspondent does not state why he wishes to prune. If the branches do not grow evenly, or if the growth is not stocky and the tree is not well clothed with side branches, pruning will remedy them. In pruning make the cut upon the under side of the branch, beginning the cut towards the center of the tree, and let it slope outwards. Observe to always cut to a bud, so that this will continue the growth. If by accident a tree has lost its leader, turn up one of the upper branches, and tie it in an upright position to a stake.

Saving Much Trouble to Mr. Murphy.—*F. Murphy*, Clark Co., Ohio, having raised some of the insect powder plants (*Pyrethrum*,) and being much pleased with its beauty as a flower and its efficacy in killing insects, wishes to extend a knowledge of the plant to others. He sends us an advertisement, in which he offers, for five cents, to send one hundred seeds of Pyrethrum, with directions for cultivation, but says he can only send a hundred seeds, "as I haven't got them." We do not doubt that Mr. Murphy makes this offer in good faith, but we cannot publish it. He has no idea of the trouble that the insertion of his offer would give. He probably has not enough seeds to give the applicants he would have a single seed each. Some twenty years ago we published a few offers to furnish seeds to all who would send a stamped envelope. In each case a request came asking us to say that the seeds were all gone. One conscientious man wrote us that it cost him a sum that he could ill afford to return the stamps that had been sent him. If seeds are worth sowing they are worth buying, and we do our readers a good service in refusing all such offers.

Making Charcoal.—*Mr. A. D. Martin*, Grand Coteau, La., asks us for the best method for making charcoal. It is more economical to burn the wood in a kiln, than in the old form of a "pit." The waste is less, and the product more valuable. A round kiln, shown in the engraving, may be twelve feet in diameter, and sixteen feet to the top of the dome. The wall rises perpendicular for half the hight, and is then drawn in gradually until four feet across at the top. A flat iron plate fits the top. An iron band is placed around the center of the kiln, to give it sufficient strength. Several bricks are left loose, to be removed to admit air when desired. The doors are for filling in the wood and removing the charcoal. A similar kiln may be made with parallel walls for making charcoal on a large scale.



"How Is Corn Hybridized?" is asked by *J. S. Harmon*, of Madison Co., Iowa. In the strict use of the word, hybridizing can only take place between different species of plants. As our many kinds of corn are all varieties of one species, when one kind is fertilized by another, the result in not a hybrid, but a cross. Corn has its two sets of organs, male and female, not in the same flower, but in different flowers on the same plant. The flowers at the top of the plant, the tassel, produce pollen only. The pistillate (or female) flowers are concealed within the husks, but hang out their long pistils (the silk) to receive the pollen. If our correspondent wishes to experiment with corn, he should select the kind to be the seed-bearer and the one which is to fertilize it. These two kinds may be planted near together, but at a distance from all other varieties of corn. As soon as the corn selected for seed-bearing shows that a tassel is forming, it should be cut away; this will prevent the silk from being fertilized by its own pollen, and if far enough from other kinds a complete cross will be produced. When a cross is thus obtained the seeds should be sown where other kinds can not fertilize the plants. By selecting the most desirable seed year after year, and allowing the seeds to be self-fertilized, a new variety may be established.

Afraid of Mullein.—"*J. W. Appleton*," Munroe Co., West Va., writes us that he is clearing a great deal of land, upon which the mullein appears so thickly that he is afraid it "will choke out the grass." He has looked through all his back volumes and finds nothing about mullein, and asks us what he shall do. Mullein is a biennial plant, which produces a vast number of seeds. The seedlings are engaged, the first year, in preparing for flowering the next. The first season the leaves form a rosette, which lies close to the ground and is not very noticeable, but they are quietly storing up material in the root. When the second spring opens the plant appears in full force. The quiet work of the previous year now shows itself in the vigorous flower stalk, four feet or more high, the upper part crowded with flowers, which are followed by pods, each containing numerous seeds. There is no specific method of killing mullein, or any other weed, but we must treat all weeds according to their manner of growth. A blow of a sharp hoe will cut off the tuft of leaves and prevent preparation for the second year. As a precaution, cut down at once all flower stalks that appear and not wait until a crop of seeds is ripe and ready to be scattered. It is a comfort to know that the plant does not endure beyond the second year. If the flower stalks are removed, the ground cannot be re-seeded, and the pest will die out. Its going may be hastened by killing the young plants.

Sorghum Sugar in Kansas.

E. B. PIERCE.

Sorghum sugar making received a decided impetus the past season from the success attained at the two manufactories located in Central Kansas, one at Sterling and the other at Hutchinson. Thousands of barrels of light brown sugar were made at these establishments, and its uniform quality and the certain results daily secured without a single failure, demonstrated conclusively that the manufacture of sugar from sorghum is at last getting beyond the domain of mere experiment. Of the two, the Hutchinson works are on the most extensive scale. Their crusher, fed by an endless carrier, is capable of expressing the juice from twenty-five tons of cane per hour. Five large boilers furnish power for the machinery and heat to evaporate juice.—Under the most favored conditions, the standing cane has been cut, and its sugar and molasses packed into barrels within the same twenty-four hours; but as a rule it was found necessary for it to stand from one to ten days in order to crystalize before going into the centrifugals. These are simply machines for separating the crystalized sugar from the uncrystalizable syrup by the aid of centrifugal force, and have been in use in Cuba and Java and on all large sugar plantations for several years past. A hollow cylinder, three feet in diameter, making one thousand revolutions per minute, will throw the mixed sugar and molasses to its circumference with a force greater than five hundred times its own weight, and striking against the fine sieve on the circumference, the yielding syrup goes through while the sugar is retained on the inside. By this means from one hundred and fifty to two hundred pounds of sugar is separated from an equal amount of molasses in about fifteen minutes. The Hutchinson mills have four of these centrifugals and have turned out four barrels of bright C sugar per hour, including stoppages, or forty barrels per day of ten hours.

Then the main question of securing sugar from Sorghum is now one of capital and business management. The same means that insures success in conducting a creamery will insure it here, while the outcome of the latter is vastly more remunerative as a few figures will show. As an illustration of the possibilities, take an acre of ground planted with the best variety of Sorghum, "the Links Hybrid." If carefully cultivated it produces twenty to forty tons of cane per acre, according to season and fertility of the soil. The Early Orange variety yields fifty to sixty pounds of sugar to the ton; the Amber, seventy to seventy-five pounds, and the Link's Hybrid, ninety to one hundred pounds—all weighed with leaves and seed on. Now the Link's Hybrid is worth at the mill, leaves and seed on, delivered the same day as cut, two dollars per ton, or for twenty tons, forty dollars per acre. At the mill the acre will yield:

2,000 lbs. sugar, @ 5c	$100.00
2,000 lbs molasses, @2½c	50.00
30 bushels of seed, @40c	12.00
Total gross product	$162.00

Now wherever coal can be laid down for two dollars and a half or three dollars per ton it is a cheaper fuel than to prepare the bagasse for burning, but this has to be got out of the way. The highest result would be obtained if another factory were at hand to transform it into paper stock for the many articles for which this stock is coming into use. Boards for finishing purposes are now made from straw at Lawrence, Kans., and shipped to Chicago, the greatest lumber market of the world. —One average acre of wheat straw will make two thousand feet of lumber, but as bagasse is better for this purpose than straw, and the yield many times more to the acre, it must eventually take its place. This lumber can be made in any color to imitate any kind of wood, and be made water-proof or fire-proof. As it can be formed at once into any shape without waste of material it promises to be the future material for furniture, musical instruments, building, etc., etc. The immense alkali deposits of the plains will furnish the needed soda.

The Hutchinson sugar mills have a capacity in a good season to work over two thousand acres of cane. This, according to the above estimates, would give a product almost surpassing belief, say four million pounds of sugar, worth two hundred thousand dollars at five cents per lb.; as much molasses, worth one hundred thousand dollars, at two and a half cents per pound; sixty thousand bushels of seed, worth twenty-four thousand dollars at forty cents a bushel, and four million feet of lumber worth one hundred thousand dollars at twenty-five dollars per one thousand feet, or the total of $424,000.—The possibilities of the industry are thus imperfectly foreshadowed. A description of the machinery and its cost may perhaps be given in another communication. [Our correspondent takes a very hopeful view of the subject. He has not allowed for the cost of the bagasse-paper-wood machinery. Ed.]

Confining the Cow's Switch.

The best method of confining a cow's switch during milking, so that it shall not invade the milk pail, or disturb the milker while at work, has probably not yet been discovered. Tying with strands of hair to the leg, confining with a loop of rope over the loins, or fastening upon the knee,



THE PLANTER.

with the fore arm, might answer for last year, but it will hardly do for the progressive year of '84. In this year of grace, we have it thus: Seated at the cow with the milk-pail between the legs in the old fashioned way, drop the switch between the side of the pail and the calf of your left leg, and, with a firm pressure of the leg against the pail, you have the bush completely under your control. This does not interfere with the security of the pail, or with the free use of the arms in milking. It works well. The only patent on this is issued from the office of the *American Agriculturist.* Try it.

Southern Plantation Life.

Last summer the writer enjoyed for a couple of weeks the hospitality of one of the fine plantations in Virginia, and the novel and picturesque impressions of its daily life are of the most enduring character. Our host was a gentleman of the old school, and his household was organized upon the patriarchal system which prevailed "before the war." He ruled his family and subjects like a king, but his sway was gentle and humane, and he enjoyed a popularity which nowadays falls to no



"LITTLE MISSEE."

real king.—The "old master," as he was generally spoken of, directed and supervised the operations of his miniature State very much as a general does his army. He had a lieutenant in the person of a stalwart and intelligent overseer, who previous to the emancipation had been his slave. "Captain Bill," as he was called, was one of the most thorough drillmasters I ever encountered. Scrupulously accurate, and severe but just, under his control the labors of the plantation were performed with the exactitude of a machine. Upwards of a hundred field hands were divided into bands, each under a sort of corporal who received his orders from Captain Bill, and his movements were subject to general orders from headquarters. The result of this system was a model establishment, one having few equals on the continent.

The laborers received a stated sum per day the year round, and were furnished with homes on the plantation and certain staples of food. Their houses formed a little village on the border of a grove of oaks grown gray with the moss of more than a century. These dwellings, erected from designs by the proprietor, were picturesque and comfortable. A distinctive feature of the village was a larger house devoted to worship, education, and merry making.—The characters familiar from descriptions of a plantation in the olden time were still present here. "Young Massa" rode to school every morning, and every afternoon tipped his chair back on the verandah to smoke his Virginia reed, and study. "Little Missee" was in special charge of a black nurse, whose features were wreathed in a perpetual grin of mingled pride and importance at the responsibility imposed on her. There was "Uncle Anthony," the sable hued, frosty haired old butler, who was in a stew over the internal economy of the household, and waged constant war with the cook upon whose domain he persisted in intruding, much to her disgust. Next to the cook the children were his pet grievance. They were always doing or breaking something, and "dem bressed chillum agin" was his regular complaint every day.—These children were a characteristic accessory of the plantation. In all varieties of color, from white to coal black, they swarmed about the house and in the village. If the young master and his pet hound took to the fields bird hunting, a train of admiring juveniles followed them; if the mistress chaffered with a pedler on the porch they gathered around with broad grins and flashing eyes; and the old master never made his rounds, or held a conference with a visitor in the door-yard, without a gaping throng of puny attendants. The wonder was not that "dem bressed chillum" gave Uncle Anthony so much trouble, but that they gave him so little.—He was an ordained minister, and on Sundays conducted service in the village chapel. Sometimes a visiting clergyman of the same sort would officiate, and then Uncle Anthony assumed general control of the congregation. As the visitor was always entertained at the expense of the master, whose hospitality was famous, these visits were by no means few or far between.

Captain Bill led the merry-makings of the plantation, as Uncle Anthony did its worship. He was always first in every scheme of gayety. A portion of the expense these events entailed was borne by the master himself, Captain Bill contributed a share, and the rest was assessed on the participants. The Mistress of the house bore her share of the burden, by the care of its dependants. Under her direction a School was maintained for the home children. The teacher was a young woman of color, pretty and intelligent, who occupied a room in the plantation house and ate at the master's table. The rudiments of English were the chief knowledge impressed upon her pupils, who also made regular classes in sewing. Among these pupils were a couple of old men, far past the age of active labor, but still ambitious to improve themselves. There was something absolutely pathetic in the spectacle of these battered graybeards, sitting among their grandchildren and painfully plodding through simple lessons which to the youngsters were mere play.—The ordinary day school



"DEM BRESSED CHILLUM AGIN."

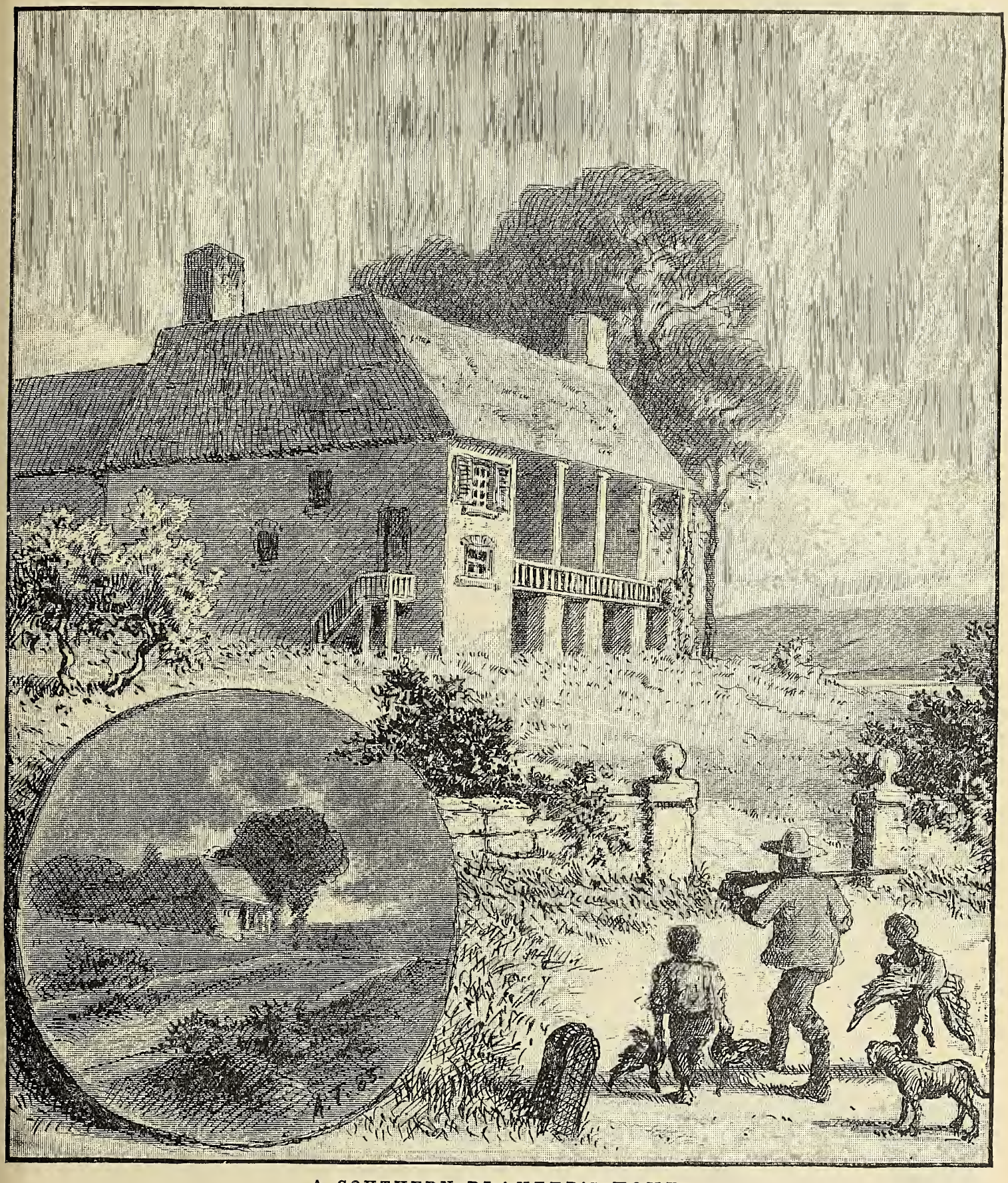
and the Sunday-school kept the teacher busy. Over both the mistress presided, instructing especially bright scholars in advanced tasks. Another branch of education was attended to by a young mulatto man who travelled from plantation to plantation, giving a weekly music lesson at each. The well-known adaptability of the colored race to such instruction was shown here. The children formed a chorus for the execution of the simple melodies of the plantation and the camp-meeting, which I have never heard excelled anywhere else.

The admirable provisions for the care of the sick struck me especially. A telephone extended to the



"YOUNG MASSA."

study of one of the doctors of the district, who lived a mile away, and for every serious case he was promptly summoned. Ordinary cases were cared for by the master on the spot. Every morning he received a deputation of the ailing, who were commonly afflicted with the simplest disorders, of which they gave, however, the most ex-



A SOUTHERN PLANTER'S HOME.

Drawn and Engraved for the American Agriculturist.

traordinary descriptions. Hypochondria is a common weakness of the laboring classes, black or white, but in the former it is exaggerated to a whimsical degree.—The less serious ailments were treated out of the medicine chest. For some complaints pills made of bread and mustard were found an effective remedy; imagination performed the rest. Epsom salts was the most popular remedy, as the bulk of the ordinary cases simply came from overfeeding. The plantation fed its colony. Corn was grown for milling and for feeding the stock, and beef cattle and pigs raised in patriarchal abundance. One day a week in winter and in summer two were devoted to slaughtering. Rations of meat were then given out, and certain titbits sent to the pensioners, the people too old to work. These were distributed under the eye of the mistress and with a view to securing rigid impartiality.—Tobacco was the commercial crop of the estate, for which it possessed the finest land in the district, and its cultivation was carried on with scientific exactness. The admirable system produced crops which made the grower a rich man in spite of the liberality which characterized all his relations with his people. "It is an extravagance which pays," he said; "willing hands do good work; if my hands are not willing ones it is not my fault."

Ducks.—Duck Houses.

BY D. Z. EVANS, JR.

Ducks require rather more care than they generally receive. Under good treatment, and where there are sufficient water privileges, they can and do pay better than almost any other kind of poultry bred for market purposes. Fig. 1 shows one of the oldest forms of duck houses, still largely used, as it is cheap, easily made, and is neat and comfortable. It is merely a night shelter, and is too dark for them to remain in any longer during every twenty-four hours than is absolutely necessary. A very convenient size to comfortably contain twenty or twenty-five ducks, is eight feet long, four feet wide, and four feet high at the peak. A hinged entrance door is in front, and if desired a large one can be made of part of the house roof. Being merely set upon the ground, it can be moved from one part of the plat to another, with little trouble. For large ones, some have the sills made like sled runners, and move them with a horse. One-inch common pine boards answer well, either tongued and grooved, or battened over the joints to shed rain.—Fig. 2 is a very good and inexpensive duck house. About half of the south or southeastern front is sash, hung on "loose-butt" hinges, so as to be open or closed, or to be taken off without removing the screws from the hinges. Size, ten to twelve

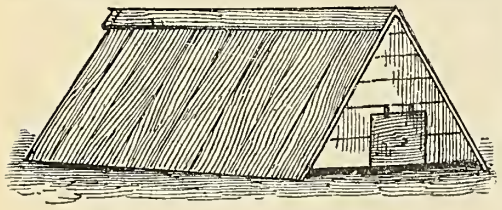


Fig. 1.—OLD FORM OF DUCK HOUSE.

feet long, four to five feet wide; front hight three feet. The roof having small inclination, needs to be well jointed, and the joints battened, or tarred sheathing paper used, to prevent leakage. If desired, the posts for the front corners can be planted in the ground, which will give firmness, and cost less than framing.—Fig. 3 shows a more substantial and more expensive duck house. Length, eight feet, or longer if desired; four feet wide; hight,

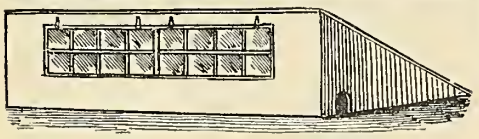


Fig. 2.—AN INEXPENSIVE DUCK HOUSE.

five feet in front and two feet in the rear. It has a sash two by five feet in the front, which should face the south. A door for the ducks is made in one end; and a large door for the breeder's use in the opposite or the same end. For the cheapest construction, set corner posts in the ground, thus saving framing. If there should ever be occasion for removing, the posts can be sawed off at the ground surface.—Figure 4 presents a still more

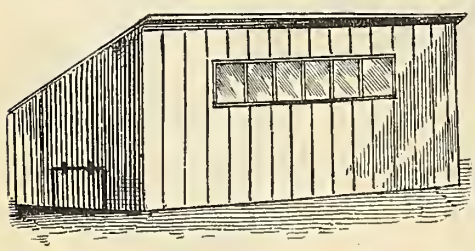


Fig. 3.—A MORE SUBSTANTIAL DUCK HOUSE.

expensive duck house, which may have either a round or double pitch roof. Making it seven feet high, gives about two feet space above the eaves for a pigeon loft, where many a fine bird can be reared. This may be covered with tin, or sheathing; canvas (good second-hand will do) thoroughly painted before and after it is applied, with any good outside paint, will make a substantial, durable, wind and waterproof roof. Sash should occupy most of the south end, to admit warmth and light. A large door is in the north end; the duck entrance can be placed where most convenient. A ventilator in each end at the peak, is needed for

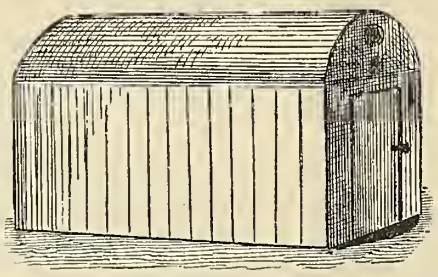


Fig. 4.—DUCK HOUSE WITH ROUND ROOF.

the health and comfort of the ducks. The writer has occasionally learned to his cost, that a hook and padlock are not an unnecessary ornament.

Why Farmers Fail to Raise Melons.

Many farmers in the more Northern States fail in the melon crop. The vines grow, blossom, and bear fruit perhaps, but it is small and poor in quality, often unfit for cattle feed. This frequently occurs in the same locality, and on the same kind of soil, where a skillful gardener raises melons of good size and finest flavor. No doubt melons can be grown more easily in a southern than in a northern climate; but it is true of this crop, as of many others, that it reaches its highest excellence in the northern limits of the belt where it will mature. For example, the Valley of the Connecticut River, especially in Hartford county, is somewhat famous for its fine watermelons. There, as in some other localities, the facility for marketing them by a near navigable stream has led to their cultivation as a staple crop. But certain it is, the sandy alluvium abounding in that valley is admirably adapted to melons. A common cause of failure with this crop, is the lack of sufficient manure. One puts a shovelful of manure under the seed, without care for the rest of the ground where the roots are to penetrate and seek most of their food. The melons are gross feeders, and require much water to supply the abundant juices and large evaporation from their extensive leaf surface, while the northern season is none too long for them. They grow with great rapidity in hot weather, and the most must be made of the summer months, by supplying them with all the food they can appropriate; it should be broad-casted with plenty of well-rotted stable manure, and plowed as long before planting as possible, that it may be well diffused through the soil. Early in August we visited a garden where the melon patch, about a quarter acre, had received twelve cartloads of manure, of about a half cord each. The melons apparently never suspected they were not growing in the tropics. There were plenty of them, and of Cassabas, and Nutmegs, beautiful to the eye, and melting upon the palate. There is great satisfaction in raising fruits perfect after their kind, only possible in northern climates, with abundant manure.

Another trouble with many farmers is indifference to good seed. A melon is a melon with them, whether it is a scrub or a thorough-bred that has had a gardener's care and been raised from selected fruits for a dozen years. There is as much difference in melons as in other products of the garden. The old-fashioned musk-melon, that was popular fifty years ago, is hardly worth raising. A well-grown "Nutmeg," or "Cassaba," or "Black Spanish" watermelon is a feast of fat things, that lingers in memory. Like begets like in the melon patch. Fighting bugs, giving room for the spread of vines, thinning the plants to two in a hill, and frequent cultivation, are other important points in this husbandry. Melons of the best flavor and in plenty, for home use and market, are within reach of every farmer two months in the year. Look after the seed and fertilizers now.

Red Hogs.—Their Standard and Future.

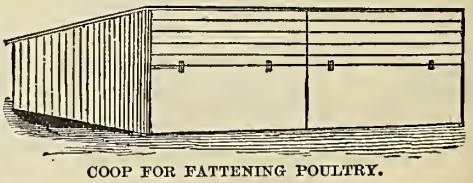
COL. F. D. CURTIS.

The breeders of red hogs have organized an association, uniting the New Jersey family, called "Jersey Reds," and those of New York, known as "Durocs." The latter have been mostly bred in Saratoga county, though quite common in Washington and Rensselaer counties. The name agreed upon is Duroc-Jersey, which unites all interests, giving a foundation broad enough for all concerned. The following standard adopted, is more for the typical hog, than a representation of the red hogs as they are now generally bred. The true Duroc-Jersey hog should be long, quite deep-bodied, not round, but broad on the back, and holding the width well out to the hips and hams; the head small, compared with the body; the cheek broad and full, with considerable breadth between the eyes; bone, not fine nor yet coarse, but medium. The legs should be medium in size and length, but set well under the body and well apart, and not cut up high in the flank or above the knee. The hams should be broad, full, and well down to the hock. The neck should be short and thick, the face slightly curved, with nose short, the ear rather large and lapped over the eyes; the tail thick at the beginning, and tapering to a point. A growth of hair of medium fineness, usually straight, but in some cases a little wavy, with few if any bristles at the top of the shoulders. Color red, varying from cherry red, or even brownish to light yellowish red, with occasionally a small fleck on belly and legs. The darker shades of red, without the black flecks, is the type most desirable. Disposition gentle. When full grown, should dress from four hundred to five hundred pounds; pigs nine months old should dress two hundred and fifty to three hundred pounds.

It will not take long to bring the Duroc-Jerseys up to this standard, and when it is done they will go to the front and stay there, as one of the most profitable breeds. The crossing of the two families together with the united blood already in them, will give them stamina for years, and prevent the "running out," which always follows in-breeding, and too long continuous breeding in a direct line. There is room for this breed, which can now under the care of the association be improved, and also be made thorough-breds. There has been a great deal of loose and mixed breeding of red hogs, which has given them a set-back where specimens have been introduced, as people seeing them supposed they were true types. The Duroc Jersey hogs are in the hands of men of character and experience, who will unite their skill and experience to perfect the breed, and to push it well to the front.

Fattening Coop for Poultry.

The writer has found the following very convenient: Dimensions, eight feet long, three feet wide, thirty inches high in front, and twenty-four



COOP FOR FATTENING POULTRY.

inches at the rear. It is made of inch-thick boards. The interior may be divided into two compartments when desired. The front has at the bottom a board twelve to fourteen inches wide, hung on hinges, to be raised for feeding. This may be cut into two separate pieces, and four hinges be used. The above space is slatted for ventilation; the entire roof is made in two sections, either on hinges or arranged to slide, so as to be easily movable for cleaning out, or removing the fowls. If not planed and painted, the rough boards should be well white-washed in spring and autumn, both to preserve the structure, and promote cleanliness and freedom from insects, as well as for appearance.

Sore Shoulders in Horses.

Farm horses are most liable to have sore shoulders in early spring, when unaccustomed to work. If humanity does not lead to care in prevention and cure, interest will prompt it, for certainly a horse with sound shoulders will do more work than if these be swollen and lacerated.—Prevention is better than cure. The first point is to secure good, well-fitting collars, those of soft leather, of equal hardness on both sides. Many collars are stuffed more solidly on one side than the other, and should be rejected. The horse should be fitted to a collar at the shop, as two very seldom have shoulders exactly alike. I have often wondered that farmers do not have collars made specially for each horse. The cost would be amply repaid as it is slight compared with the increased service that would thus be secured. I prefer a collar stuffed with hair. The leather should be kept well oiled, especially where meeting the shoulder. Pure neat's foot oil makes the leather soft and pliable, and is a good preventive and cure for sore shoulders. Cloth collars are now made, and cloth pads to cover the entire collar face. I know they are good and recommend them to other farmers.

Early in the spring, at least two weeks before plowing commences, begin bathing the shoulders of each work horse with strong salt brine. I keep in the stalls an old fruit can, and a rag tied to the end of a cob; and it takes but a moment to throw in a handful of salt with some water, stir it up and apply the brine. It toughens and hardens the skin and cools it, allaying inflammation. I do this each evening; after work begins I first wash off the shoulders with clean water. I have never been troubled with sore shoulders since I have taken to carefully selecting collars, keeping them soft with oil, and bathing frequently with the salt water.

The best cure for sore shoulders is rest, and this may be secured without stopping work, by removing the pressure from the irritated spot. One method is to cut a long, narrow slit in the hame groove opposite the soreness, remove part of the stuffing and make a little depression by pounding the face over the sore. The slit will not injure the collar. Another method is to use pads above and below the tender spot, to keep off the pressure. After considerable experience I consider the best pad one made by stuffing a coat sleeve with hay, about one inch thick between the collar and shoulder, but thinner where it passes under the hames. Hay works into lumps less than rags, hair or wool, and is elastic enough to spring the collar from the shoulders when the draft slackens, giving them opportunity to cool and rest. J. M. S.

Dimensions of Cisterns.

In answer to inquiries about the filtering cistern described on page 571, December *American Agriculturist*, we reply: In a stiff clay a small cistern of twenty to forty barrels capacity might be safely cemented directly on the earth, but in ordinary soils and for larger cisterns, a good four-inch wall of hard brick is on the whole the cheapest. It is important to make the excavation smooth so that the bricks can be pressed firmly against the earth; otherwise these will be pushed out and the cement cracked, causing a leak.—As to the dimensions, we prefer a cistern about one-fourth deeper below the spring of the arch, than its width inside. By this rule a cistern eight feet wide will be ten feet deep below the arch. We have always used for the top a cast iron ring twenty inches in diameter, for the man-hole, covering it with a tight fitting cast-iron lid. The ring has a flange two inches wide extending out over the brick. The capacity of a cistern needed to save all the water from a given extent of roof, will depend on the total annual rainfall, its distribution throughout the year, and the regularity with which it is used. A roof ninety feet by twenty feet contains eighteen hundred square feet. This is supposed to be the measure of the building on the ground and not the shingled surface. In the vicinity of New York the average rainfall is about forty-two inches, or three and a half feet. This would give sixty-three hundred cubic feet of water (1,800 ft. x 3½=6,300). Since in that climate the rain is distributed pretty regularly through the year, it would be necessary to only provide storage capacity for about one-third of the rainfall of the year, or twenty-one hundred cubic feet. This divided by four and one-fifth (the approximate number of cubic feet in a barrel of thirty-one and a half gallons) gives five hundred barrels, and this quantity of water requires a round cistern thirteen feat diameter to be nearly sixteen feet deep below the arch, or a square one thirteen feet across to be nearly twelve and a half feet deep; or a round one fifteen feet in diameter would need to be about twelve feet deep. In the Far West—in fact, in most places west of the Missouri—the rainfall is largely during the six months beginning with March, and cisterns need a greater storage capacity.

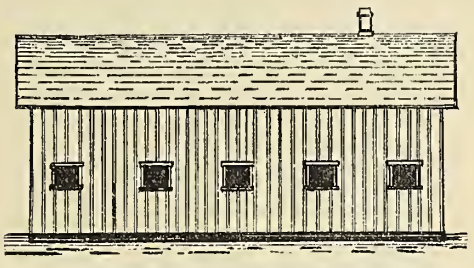


Fig. 1.—SIDE OF PIGGERY.

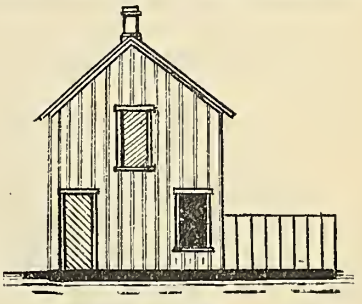


Fig. 2.—END OF PIGGERY.

A Complete Frame Piggery.

BY W. W. MAUGHLIN, BOYD'S STATION, MD.

The piggery shown in figures 1 to 6 is fourteen by forty feet; corner posts, fourteen feet; hight of first story eight and one-half feet; second story, five feet from floor to top of wall plate.—The first floor has two thicknesses of inch boards, a foot wide, the lower boards running lengthwise of the building and the upper ones crosswise. The walls also are two layers of similar boards, the outside ones perpendicular, and battened with inch strips three inches wide. Second story floor is one thickness of narrow inch boards, tongued and grooved. Stairs to second story three feet wide. All the doors are battened. One twelve-light window in gable end, and one in feed room.—Each pen has a window opposite it, across feeding hall (shown in figs. 1 and 3) and a sliding sash at the rear, seen in fig. 3. Between each pen and its yard is a batten sliding door, two and a half feet wide, four feet high; and at the outside of each yard is a door three by six feet either on hinges, or to slide. Hight of yard fence, six feet. From each yard to its pen is an incline of two-inch plank, with inch strips three inches wide well nailed on to prevent pigs from slipping.—The feed troughs run across at the front. The partitions, five feet high, between the pens and over or in front of the troughs, swing as seen in fig. 5. The hinged stick, *A*, fig. 6, props the swinging partition back, when cleaning out troughs and supplying feed (slops), as seen in figure 4; and it falls back on removing the stick (fig. 4). However, the partitions dividing the pens and yards can be made either stationary or to swing, the latter being preferable, as this will allow all the pens to be thrown into one large one, and the same of the yards. The feed room is provided with a brick chimney, an iron kettle, a large wooden box for mixing feed, slop barrels, etc. The entry doors to this are made wide, to admit a slop barrel on a wheelbarrow.—If the yards are planked on a level with the floors the incline can be dispensed with.

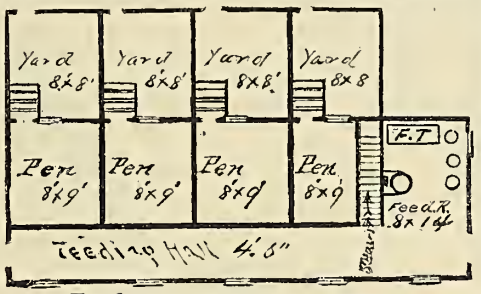


Fig. 3.—GROUND PLAN OF PIGGERY.

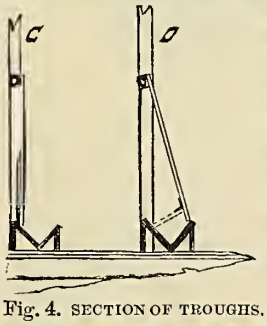


Fig. 4. SECTION OF TROUGHS.

Materials and Cost.

TIMBER: Sills, 6 by 8 inch, four, two 40 feet long (or shorter ones spliced), and two 14 feet=432 feet. Four corner posts, 4 by 4 inch, 14 feet long=75 feet.—Plates, 3 by 4 inch, two 40 feet (or shorter ones spliced) and two 14 feet long=108 feet. Five pieces for swinging partition posts, 4 by 6 inch, 8 feet long=80 feet.—Ten posts for outside partition walls, 4 by 4 inch, 8 feet long=107 feet.—Fourteen fence posts, 4 by 6 inch, 8 feet long=224 feet.—Forty-two floor joists, 2 by 8 inch, 14 feet long=882 feet.—Forty-two rafters, 2 by 4 inch, 11 feet long=308 feet.—Twenty-one pieces, 2 by 4 inch, 8 feet long=112 feet.—Eight pieces, 4 by 6 inch, 14 feet long, for joist beams=224 feet.—Twenty-seven pieces for ledgers and frame rails, 2 by 4 inch, 16 feet long=238 feet.—TOTAL framing timber, 2,848 feet (board measure) @ $14 per 1,000 feet, $39.87.

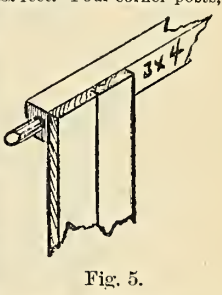


Fig. 5.

Rough boarding, 1 inch thick; 968 feet sheathing; 1,120 feet flooring (1 foot wide, 14 feet long); 3,220 feet weather-boarding; 1,312 feet for swinging partitions, fence, troughs, etc.; 124 batten pieces 1 by 3 inch, 14 feet long (434 feet); 76 pieces, 3 inches wide, 8 feet long, for braces for swinging partitions (203 feet.)—TOTAL, 7,257 feet @ $17 per 1,000 feet, $123.34.

800 feet dressed lumber, 1 by 4 or 6 inches, tongued and grooved, for doors and 2d floor, @ $20 per M.	16.00
5,000 shingles, @ $3.90 per M.	19.50
2 windows, 12 light, 8 by 10 inches	3.00
10 windows, 6 light, 8 by 10 inches (sliding sash)	7.50
3 door frames, 3 feet by 6 feet 8 inches	5.25
Bricks for 8 by 8 inch flue, etc.	26.30
Hardware, sash hinges, nails, etc.	5.00
Materials for and painting	10.00
Carpenter work	110.48
Total cost of Piggery.	$366.24

INFLUENCE OF PLACIDITY ON THE SECRETION OF BUTTER FAT.—During the remarkable public test of the Jersey cow, "Value 2d," when she gave over twenty-five pounds of butter in seven days, it was found that one day she produced one pound less butter than upon the preceding and following days. This, of course, led to enquiry and speculation as to what could be the cause. It was found that, after being turned out as usual, to spend the night in a small pasture with two companions, threatening clouds came rolling up with muttering thunder, and so, rather than expose

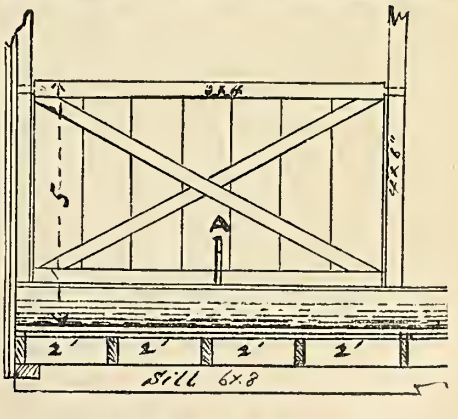
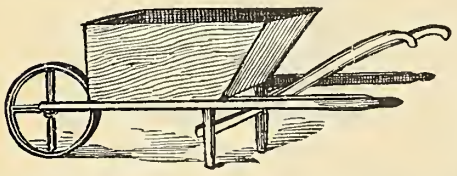


Fig. 6.—FRONT OF TROUGH.

"Value 2d" to the storm, she was brought into her roomy stall, with cows upon every side of her and all things very comfortable, and a manger full of green fodder besides. Still she worried a little and called for her companions. Though she fed well, and appeared all right, she fell off in her butter yield just about one pound. This and some other confirmatory observations lead me to think that the mental condition of the cow may have more to do with her butter yield than the kind of feed. W.

Convenient Extra Wheel Barrow Handles.

Mr. Avery J. Northrup, Delaware Co., N. Y., sends us a sketch and description of an attachment to



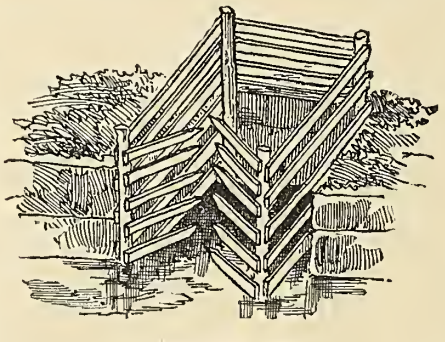
the ordinary wheelbarrow, easily supplied, which he has used quite satisfactorily for twenty years. It is his own device, and unpatented. Two plow handles are obtained from a factory ready bent, or handles from a broken plow will answer, or they may be worked out of two pieces of wood of suitable form. To save weight the plow handles are dressed down quite light except where the bolts go through, and are cut to the desired length. Bolt the straight ends to the legs of the harrow near the bottom, raise them up so that the curved ends will be three or four inches below the closed hands when one stands upright with the arms down, and bolt them to the ordinary hand shafts. —By using these supplementary handles the box is carried nearly level, when filled with fruit or sand, etc. When wishing to elevate the rear of the box, the lower handles of the barrow may be used.

A Destructive Farm Bird.

The Great Horned Owl is the third in size of the sixteen species of owls found in the United States, the largest being the great Gray Owl, and the second the Snowy Owl. But as the former inhabits the extreme Northern States, and the latter visits us only in severe winters, they are far less destructive to poultry than the Great Horned Owl (*Bubo Virginianus*), which resides over the greater part of our whole country. A farmer living not many miles from Philadelphia, owned a flock of turkeys which roosted in a partly open shed. On four successive mornings a turkey was missing, and fearing the loss of his entire flock, he lay in ambush for the thief. His shot broke the wing of a Great Horned Owl, as it was noiselessly entering the turkey shed. He kindly boxed this owl and expressed it to me. It was a large specimen, measuring two feet one inch from the tip of bill to end of tail. Evidently turkey suppers had agreed with him. I had him in captivity for several months, and later, another of the same species. While in my possession, these owls were fierce and untamable, and never once expressed any good feeling or attachment towards me, or to others who fed them and treated them kindly. Any attempt to stroke or touch them, was invariably met with a savage snap of the bill. Many animals after being in captivity for a time, become reconciled to their fate, and give up attempting to escape, but not so with these owls. The first one repeatedly bit entirely through the wooden cage bars; and the second, which I had fastened by a strong brass chain to a perch, several times forced apart the links with his powerful beak, and made off. One of his wings being clipped, he was unable to make long flights, but we always found him in the morning perched high on the grape arbor, among the vines. It was a difficult, if not a dangerous job to bring him down, but we always accomplished this by first throwing a piece of thick carpet around him. More than once his sharp talons have pierced through the carpet. The approach of a dog or a cat would always put them both in a rage, when they would puff out their feathers, lower their heads, spread the wings, and savagely click their bills, thus making themselves appear terrible animals, when puffed up to very far beyond their actual size. A dog that used to take pleasure in going to the cage of my first owl, and arousing his ire, once recieved a clutch in the nose, and never after this could he be induced to go near his owlship. They would eat almost any kind of meat, beast, bird, or fish. Even a screech owl, (*Scops asio*), a blood relation, was devoured by one of them with an apparent relish. These owls could see at all times, but best at the dusk of evening, or in the moonlight. This species, besides being the most noteworthy robber of the roost, feeds upon rabbits, opossums, pheasants, partridges, etc. Their favorite residence is the dark solitudes of deep swamps, covered with thick, tall timber. Here they nest and rear their young. The nest is generally composed of sticks and leaves, carelessly put together, and placed in a high fork of a tree, where the top has been broken off. The eggs of the Great Horned Owl are two to four in number, nearly spherical, two and a quarter inches in length, and of a dirty-white color. C. FEW SEISS.

A Fish Trap.

Though trapping fish is frequently forbidden by law there are many fish-abounding streams, especially in newly settled regions, furnishing a supply of excellent food at some seasons. Fish are often taken most economically by means of a simply constructed trap. A common method is shown in the engraving. Selecting a convenient place, usually the main channel, four or six posts are driven and covered on the two sides and the up stream end with lath nailed just close enough together to stop all fish large enough for use. The space enclosed may be twenty to forty inches wide, and three to six feet long, according to circumstances. At the lower end, lath are nailed on with their inside ends approaching each other to form a funnel, leaving the opening just large enough for the fish to pass easily. Weirs or walls extend from each side to the main banks. Stopped by these and bent on going up stream, the fish follow along them to the trap opening, which they enter, and seldom find their way back through the narrow aperture. They may be taken from the trap with a dip-net, or by hand. The weirs may be of loose



A TRAP FOR FISH.

stones or driven stakes or brushwood, to allow the passage of considerable water through them when it rises; or they may be of earth, logs, or driven boards or slabs, as the material, character of the stream, the permanency of the structure, etc., indicate in each case. The occurrence of freshets is to be taken into account. By lengthening the box or pen a second funnel may be made at each end to arrest the fish going down stream as well as up, though the upper funnel would catch floating material and soon clog, and it may be best set in at one side as the fish would usually find it. They ascend the stream as the spawning season approaches, which differs with the varieties. Their descent occurs at a later period in the season.

Profit in Pig Feeding.

Feeding pigs for slaughter during winter, the time frequently chosen, is much oftener done at a loss than at a profit; this is especially the case in colder climates, except when a chance increase in price and a demand for and good use of the manure may help out. It need not be so, if farmers generally understood the necessity of and provided for proper warmth. The heat of the body in swine, as in all other animals, is only kept up by food, and when the surrounding cold carries off more of the heat that the food consumed and digested can produce, there is little if any left to go to increase of flesh and fat.—Of two lots of spring pigs, I had one lot ready to slaughter at the beginning of winter, and concluded to keep the others along. They were kept in an enclosed shed and given all the corn they would eat. They consumed just enough to keep up warmth and locomotion. Even this was too heavy a draft upon their digestion and assimilation to have them in a normal condition, and they did not really hold their own. Only a higher market the last of February enabled me to realize even as much for this lot as for the other. It may be set down as a rule, that there is no profit in feeding pigs for slaughter in winter, where the food will freeze in the ordinary weather.

But during the past winter I fed a number of pigs at a decided profit. They grew as fast as the autumn fed, their entire gain from a moderate condition was made in cold weather. Two of them weighed over half a ton. They were kept in a pig house so warm that it rarely freezes! They were fattened mostly on rye meal and buckwheat bran. Queer feed, some farmers will say, but it is capital for fattening, as noted below. I once tried a coal stove in my pig house to save a lot of early pigs, but they became sickly and did not do well. What is wanted is to have the building close and tight enough to keep out external cold, leaving the inside to be warmed by animal heat. A basement under the pig house can be turned to good account for fattening pens.

Something more than mere stuffing with food is required, if rearing and fattening of pigs is to be made desirable. Food and labor are becoming more costly every year, and to make this important industry profitable, there must be corresponding reduction in losses, to be secured by more economic surroundings, and making a little of the more expensive food go as far as possible in making flesh. The first requisite is comfort, as without this no animal will thrive well. Let it be well understood, that cold and filth are destructive to success. Arrangements to save labor are of increasing importance as above noted. As to food, one kind only of concentrated diet, without change, will break down any young pig's stomach, and produce a feverish state in an older one; it is unnatural for an animal naturally constituted to eat everything. Concentrated rich food needs a combination with coarser kinds, to render it less compact and allow a more ready penetration of the gastric juices. How can healthy action be maintained, if the intestines of the animal contain only a mass of fermenting, putrefying stuff? I never had autumn dropped pigs grow so fast, or show so healthy a condition as two lots of different breeds fed this winter on buckwheat bran. They are in a warm pig house, where it seldom freezes; the coarser part of the flour left on the hulls supplies food for the stomach, and the hulls keep the intestines in a healthy condition. Few farmers think of this latter point, and confine their pigs to clear corn meal, the most heating and unhealthful of all the cereals. Corn is the great staple food for hogs, and will continue to be, but it should be utilized to the best advantage by judicious combination with coarser food, for swine as well as for men, and for breeding as well as growing and fattening animals. A feed once a day to fattening hogs of carrots or beets, increases the appetite, gives tone to the stomach, and has a cooling effect upon it. More roots, or other cheap succulent food is required. F. D. C.

Horseradish from Seed.

A correspondent inquires of us whether Horseradish can not be raised from seed, and where the seed may be procured. It grows very readily from cuttings of the root, the least fragment producing a plant, and has been multiplied in this manner for many generations. There being no use for seeds, the plant has ceased to produce them. None, so far as we are aware, have ever been found on the plant in this country. It is probably sterile in Europe also, as a botanist in France states that he had watched the plant for some forty years without finding a single ripe seed. According to him, the flowers produce no good pollen. Neglected clumps of horseradish produce flowers very freely. These are white, and of the shape shown in the engraving, which is much reduced. In the absence of an abundance of other flowers, we have known these to do good service in a bouquet.—There are a number of other plants which are multiplied extensively by means of runners, cuttings, and other methods that produce seeds very rarely, if at all. The sweet potato is one of these, the Chinese yam another, and there are numerous instances among plants cultivated for their flowers. The absence of seed in Bermuda-grass in this country, is probably due to the fact that it spreads so widely by its stems that seeds are not formed, though it bears them in some countries.



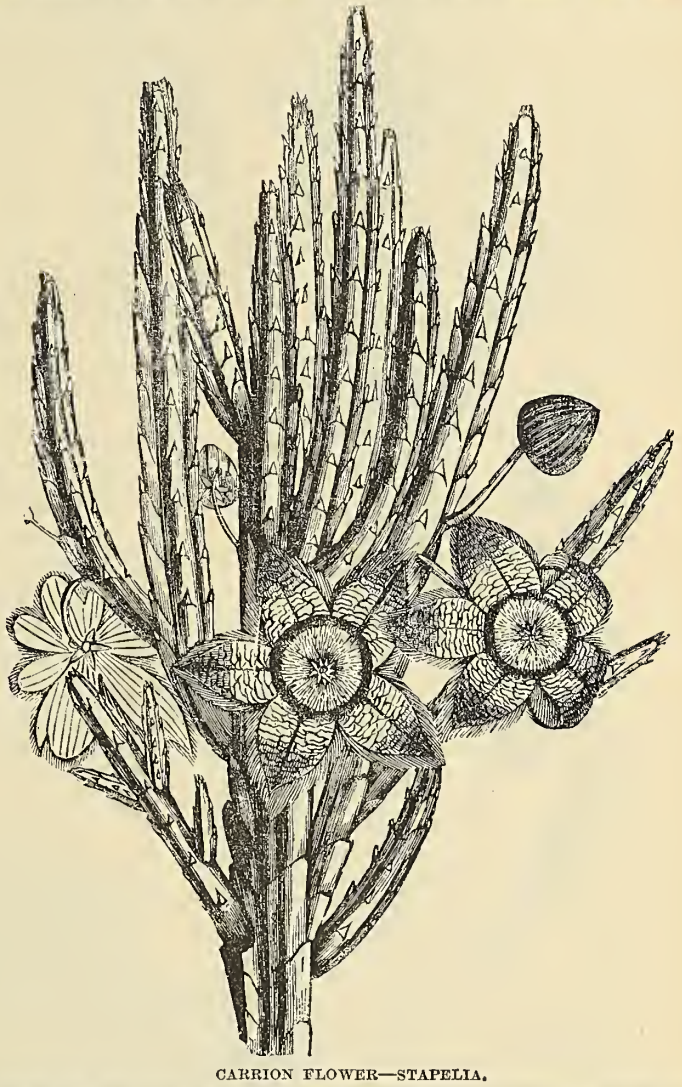
HORSERADISH IN FLOWER.

Ivy and Other Climbers.—Do They Injure Trees?

Miss L. Griffin, De Soto Co., Miss., writes us that there are on their place two fine Magnolia trees nearly fifty years old. Some young European Ivies have been planted at the base of these trees, and are now growing upon them. She asks if the ivy will in any way injure the trees? As several have asked the same questions about other climbers, the query is one that calls for a general answer. The injury done by the Ivy and most other climbers is entirely mechanical. Vines are provided with different appliances to assist them in holding fast to trees. The Ivy, the Poison Ivy, Trumpet Creeper and others, have little roots along their stems; these roots do not, as some suppose, penetrate through the bark and live upon the sap of the tree. They only enter the crevices of the bark, and soon lose their root-like character, becoming hard and wiry, and serving merely as hold fasts. Other vines have tendrils, either a modified branch or portion of a leaf, which cling to the tree. Our Virginia Creeper has branched tendrils, and each branch bears at the tip a little disk, which acts somewhat like a boy's sucker, and forms a hold-fast. Still other plants hold to the tree by twining around its branches. This last class, the twiners, are the most generally injurious, especially to young trees, as they soon become woody and prevent the expansion of the tree, literally choking it to death. One of the most beautiful of our native vines, and one often cultivated, is Roxbury Wax-work, or climbing Bitter-sweet (*Celastrus scandens*); this is especially injurious, and it is not rare to find wild trees with the slender trunk or the branches embraced by this vine, which so constricts them as to cause death. Ivy upon trees is especially frequent in England, and while some of the horticulturists of that country have claimed that it does no harm, others assert that it is a positive injury. Both are probably right. On old trees the bark of the trunk and older branches is rough, scaly, and its exterior really dead, and vines can do no harm. On young trees, on the other hand, the bark of which is smooth, and still taking a more or less active part in the growth, the covering of Ivy or other vines, will arrest development and be injurious to the tree. As to our correspondent's Magnolias, neither Ivy nor other vines can add to their beauty, and even if they would cause no appreciable injury, we should prefer to transplant the climbing vines to some other less valuable trees.

The Carrion Flowers—Stapelias.

Among the many plants sent us for a name, no others, within the past year or two, has come more frequently than the Carrion-flowers, as the Stapelias are often called. As seen by the engraving (one-third of the real size), the plants have a very striking appearance, which is sure to excite a curiosity to know the proper name. The plants are popularly thought to be cactuses, as like most plants of that family these have no proper leaves, the green bark of the fleshy stems doing the work of leaves. The stems of the stapelias are four-angled, while in all the cacti with similar stems, there are five or more angles. The flowers are produced along the stems, and as the engraving shows, are strikingly curious in form, while their oddity is increased by the colors; the ground is of a creamy-white or pale-yellow, and spotted and blotched with very dark purple, or maroon color, and present a most lurid appearance. In the bud, the divisions of the flower cohere by their edges, and open by suddenly bursting, especially when the sun shines on them. The flowers can not be said to have fragrance, though they have a great deal of odor, which is so like that of decaying meat as to make the common name descriptive and appropriate. So closely does the odor resemble that of carrion, that flies have been known to deposit their eggs upon the flower. The stapelias are extremely easy to cultivate, as they need only poor soil, and very little water. They are propagated from cuttings of the stem, which should be allowed to dry for several days before setting them out in very sandy earth. The stapelias, of which there are about six species, are natives of the Cape of Good Hope, where, during the dry season, no rain falls for several months at a time,



CARRION FLOWER—STAPELIA.

Huckleberries and Blueberries.

Few not engaged in it are aware of the extent of the berry trade. There are communities in which it is the chief source of income; indeed we have an account of one family of seven in New Jersey, which, by picking berries, earned twenty-five dollars a day throughout the berry season. Wherever there is a favorable berry locality, it allows boys and girls, women and feeble persons, to earn something, in an easy and healthful employment. The market names of these berries vary in different cities. In some places they are all called huckleberries, and are distinguished by their color as black and blue. Those wishing to be very precise say, "whortleberries," but as both this and "huckleberry" are corruptions of the ancient "myrtleberry," both of these names are proper. The great bulk of the berries sent to market is the product of four distinct species, though two or three others afford small quantities. Formerly these plants were all placed in the genus *Vaccinium* (the ancient Latin name), but modern botanists divide them according to the structure of the fruit. If the berry be cut across, especially before quite ripe, it will be found divided into several cells or compartments. The berries having four or five cells with numerous seeds in each, remain in the old genus, *Vaccinium*, and those with eight or ten cells, and a single, seed-like little nut in each, belong to *Gaylussacia*, a genus so named in honor of a distinguished French chemist. Both genera furnish important market supplies. In order of ripening, the earliest is the Dwarf Blueberry (*Vaccinium Pennsylvanicum*), common on dry hills, especially in northern localities. The bush is from six to twelve inches high, and often so laden with fruit as to lie prostrate on the ground. The berries (fig. 2), are large and sweet, but too tender to carry well. The earliest berry of importance, and ripening a little later than the above, is the Low Blueberry (*V. vacillans*). This is also a plant growing on high lands; the shrub is rarely over two feet high, with yellowish-green branches, and pale, dull leaves. The berry is rather small, very sweet, and covered with a handsome blue bloom. It is hard, carries well, and is a popular market fruit. The Swamp Blueberry (*V. corymbosum*), is the tallest of all the northern species, being often ten feet or more high. Though its common name would indicate that it is only found in swamps, yet it often occurs on dry soil. The shrub is very variable in its leaves and fruit. The berries are usually blue, and covered with a very thick blue bloom, though one form has a black fruit without the bloom. This is the latest, the largest and sweetest of the blueberries, and is known to the New York market men as "swamps." It is very tender, and does not carry well, especially if sent in too large boxes. The huckleberry of some markets, and black huckleberry of others (*Gaylussacia resinosa*), is produced by a bush one to three feet high. The leaves are thickly covered with small dots of resin (whence the specific name), and if held in the hand, they become very sticky from softening of the resin. The fruit (fig. 1), of medium size, is very black and shining, very firm, and can be shipped to distant markets. As the large seeds crack under the teeth when the berry is eaten, they are often called in the market, "crackers." Bushes of this species occasionally occur with fruit of a pale reddish, and even a creamy white color. These are the leading market berries, but limited quantities of the Dangleberry, (*G. frondosa*), and the Hogberry (*G. dumosa*), are occasionally met with. The great berry district in New Jersey, is in the coast-wise counties, where there are immense tracts covered with stunted forests, among which the berry bearing shrubs are abundant as an undergrowth. Numerous families resort to these places, build a shanty, and camp out during the picking season. The fruit is sold to "carters," who have their regular routes, and at established points take up the fruit and ship it to market. When an occasional fire sweeps these forests, the berry bushes are not destroyed, but spring up from the root, and in a few years bear more abundantly than ever. While these fruits are found in such abundance in the wild state, it is not probable that their cultivation can be profitable: still, those who have "huckleberry pastures," may do something to improve them by grubbing out other shrubs, thus giving the berry-bearing ones the whole ground; and, taking a hint from the improvement resulting from accidental fires, by cutting over the bushes once in a few years. From what has been done with other plants, it is not unreasonable to suppose that cultivation and careful selection would produce improved varieties of huckleberries and blueberries, as is has with the blackberry. This is a good field for some patient amateur to work.

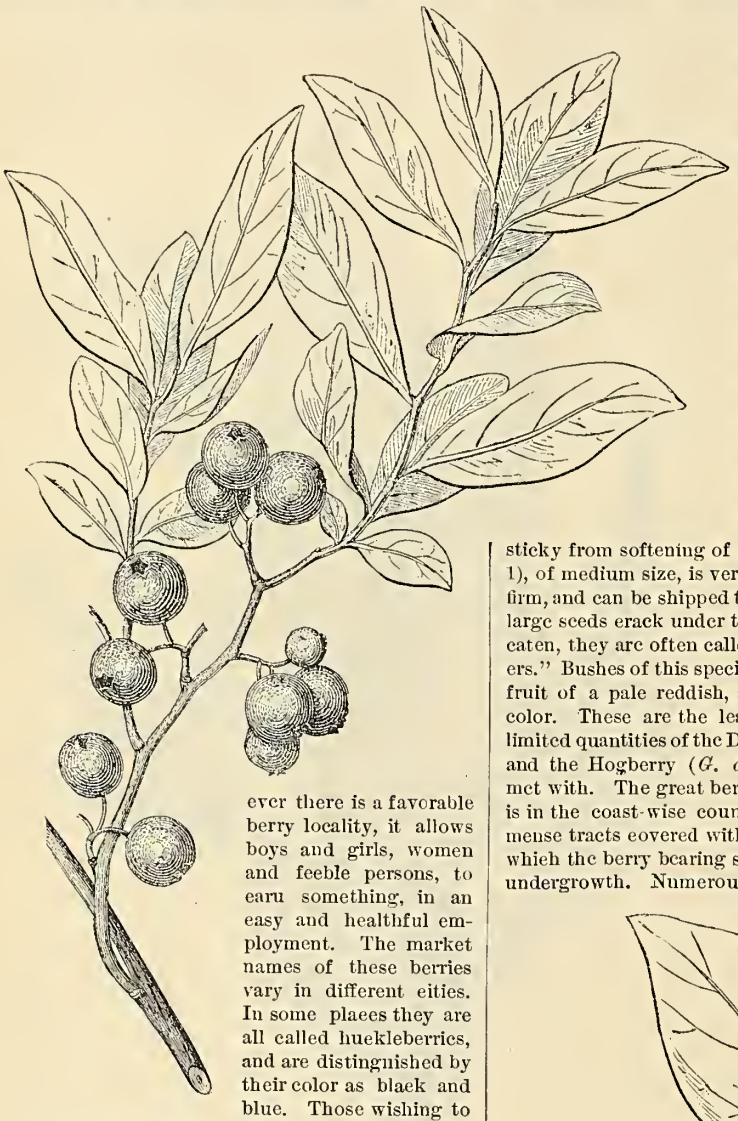


Fig. 1.—THE BLACK HUCKLEBERRY.



Fig. 2.—THE DWARF BLUEBERRY.

Kerosene to Kill Insects.—An Emulsion.

Since the illuminating oil obtained from petroleum, known in this country as kerosene, and in England as paraffine oil, came into general use, it has been employed with variable success as an insecticide. That it would destroy insect life was long ago established; that it would also destroy plant life was sometimes demonstrated in a manner more convincing than pleasant. The oil in its concentrated form, can be tolerated by but few plants, The first improvement in its use was to add a very small quantity to a bucket of water, enough to make but a mere film upon the surface: then diffuse it through the water by violent stirring, and apply before the oil and water had time to separate. This answered fairly well, but was troublesome. The next step was to divide the kerosene, not by dissolving it, but by diffusing it in the form of an emulsion. It is well known that oils may be suspended in water by means of gum, sugar, etc., and may be kept thus for some hours or even days. It has been discovered that milk, either fresh or soured, is a convenient medium to unite kerosene and water. Mix together kerosene and half as much milk, stirring them thoroughly to form a cream-like mixture. When the two are so completely united that no oil is visible, dilute the mixture with twelve times its bulk of water, adding the water gradually, and stirring thoroughly. This emulsion has been found especially useful in the treatment of the various scale insects, so difficult to destroy by ordinary insecticides, and is used for various other insect pests. For trees use a syringe or force pump, and for house-plants, often injured by scale insects, apply with a sponge or swab,

The Evergreen Barberries.

Nuttall gave the name *Mahonia* to the Barberries with evergreen and divided leaves, in honor of Bernard McMahon, a gardener in Philadelphia, early in this century. Later botanists, not considering the difference in the leaves of sufficient importance to separate them from the Barberry, now place them in *Berberis*, though as a general thing, they are called Mahonia in the nurseries. The common species of our northwest coast, *Berberis Aquifolium*, is the one most generally seen in cultivation, and is an excellent ornamental shrub. The more recently introduced Japanese species, *B. Japonica*, is far superior in size and beauty to ours. The shape



THE JAPANESE BARBERRY.

of the handsomely divided leaves is shown in the engraving. It grows about three feet high. This is not quite so hardy as the native species, and should be given a somewhat sheltered situation. This was at one time called *Mahonia Bealii*, a name that is retained in some of the nursery catalogues.

Suggestions on Ornamental Planting.

BY E. A. LONG.

In planning for ornamental trees, shrubs and plants, it is well to study the utmost capability of single kinds for serving a variety of purposes at the same time. Thus, a particular variety may beautify the grounds generally while serving for shade or for shelter from sweeping winds. It may, at the same time, be an individual of a tasteful group, or be used as a background for other smaller growing kinds, or even to screen some disagreeable object. Further still, in placing it, we may have a regard for striking contrasts with other surrounding trees and shrubs of different appearances, or else for toning up or balancing the general effect of the arboreal and other embellishment of a place. In addition to all the above the tree will undoubtedly have some distinctive qualities of its own, in flowers, fruit or foliage, rendering it specially attractive at certain seasons, and it should be used in a way to best draw them out. These remarks apply equally well to all trees, shrubs and plants used in the adornment of the grounds. Their selection and arrangement, to secure all the results possible, is one of the nicest matters pertaining to ornamental gardening. Those who take the most pains to study the selection and judicious arrangement of material, will be far more likely to secure gratifying results than the haphazard planter. It is time to begin studying up what is to be done the present spring, to consult catalogues and books on ornamental gardening, the back volumes of the *American Agriculturist*, etc. Aside from its practical application, the study of trees and plants is a delightful occupation for all the members of the family, as is the planning of the grounds. The use of instruments in making plans on paper or linen will develop skill in drawing. Even children encouraged to take part in such occupation will often advance some excellent ideas. If the entire family take part in the planning and selection they will be ready to help along in the actual work. Quite young children may easily be led to take a keen interest, and be kept wide awake on these points.

The Cedar of Lebanon.

In trees planted for ornamenting small or large places, there usually seems to be but little variety, and in this respect, one place bears a general resemblance to another. While there is a very little variety among deciduous trees, with evergreens there is even more sameness. A foreigner might suppose that our climate allowed of the use of but few evergreens, as he sees the half-dozen or so kinds repeated everywhere. The most frequently planted evergreen is the Norway Spruce, a most useful and picturesque tree, but one finds its constant repetition somewhat monotonous. Probably of every hundred evergreen trees planted in the Northern States, about ninety are of this kind. Norway Spruce, Arbor Vitæ, Red Cedar, Balsam Fir and the White, Austrian and Scotch Pines, make up the list of evergreen trees that appear to be generally known to our planters. Even the Hemlock and our White Spruce, native trees, not excelled in beauty by any others from anywhere, are very rarely seen. When a gentleman of our acquaintance was ridiculed for marrying a very large lady, he replied: "You can not have too much of a good thing." Norway Spruce is a good thing, but we find it easy to have too much of it, and it is unpleasant to see this and Arbor Vitæ occupying ground that might be filled by a great variety of beautiful and interesting species. Among the trees very rarely seen is the Cedar of Lebanon, which is desirable for its peculiar beauty, and especially interesting on account of the frequent reference to it in the Scriptures. The young tree has a conical form, but when old it is remarkable for the great length of its branches, which spread in distinct layers, and give the head a most striking



A CEDAR OF LEBANON.

appearance. The tree is quite hardy in the climate of New York City, and in well-drained soil would no doubt endure a much colder locality. When full-grown, it is from fifty to eighty feet high, with a spread of branches equal to its hight; the trunk is often thirty feet in circumference. The wood of the Cedar of Lebanon is perishable, and of little value. The cones are three to five inches long, and are very obtuse; they are made up of broad, flat scales, between which are the flat, thin-winged seeds.

Producing New Carnations.

Those who cultivate the Carnation, generally procure the plants from florists. They are thus



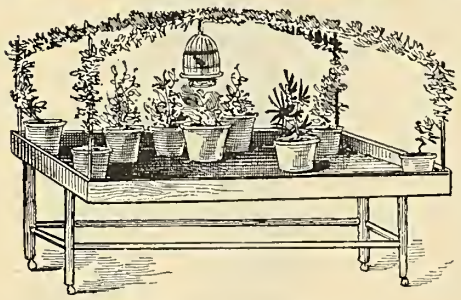
A SINGLE CARNATION.

sure of getting fine varieties, but miss the novelty and interest of growing them from seeds. No flower more deserves the attention of amateurs, as it amply repays the care given it. To have the finest seedlings, one should raise his own seeds. In the single flower, as shown in the engraving, the styles (parts of the pistil), are quite conspicuous: in a double flower these are concealed by the numerous petals, but may be found by a little search. The very double flowers bear little or no pollen, and are to be fertilized by pollen from a semi-double or single one. Fanciers fertilize the first two or three flowers upon a plant, and remove all the others, as well as the buds. When the petals begin to wither, they are carefully pulled out of the flowers that have been fertilized, otherwise their decay may injure the growing seed-pod. When the seed is ripe, the pods should be gathered and the seeds kept in them until next spring, when they are to be sown. Taking the earliest flowers as seed bearers, and allowing only a few pods to mature, will produce much better seed, and the plants raised from them will be finer than those raised in the usual way. By continuing this for a few generations, an improved strain may be established. A desirable flower thus obtained may be propagated by cuttings or by layering.



A Plant Stand.

Most of the plant-stands have a series of ascending shelves. If these face the room, the lower plants are shaded by the upper ones, and suffer from lack of light; if facing the window, the lower plants are hidden from view, unless one goes out-doors to see them through the glass. I have a stand, or table, which suits me. It is so low that the tops of the largest pots are just on a level with the window sill. The legs, which are well braced by cross-pieces, like a library table, are of oak, oiled. The top is of pine, and is like an ordinary table, with a strip of pine two inches high all around the edge. This strip answers to keep the pots from slipping or tipping off in moving the stand, and allows an inch of sand all over the table, which absorbs any water escaping from the bottom of the pots, and it gives off a steady supply of



A PLANT STAND.

moisture by evaporation. The table top should be thoroughly painted, leaving no cracks for the water to run through. It is mounted on strong, easy turning casters, and can be readily wheeled out into the room on cold nights. Opposite sides are turned to the window, which saves shifting or turning the separate pots to give both sides of the plants equal light. At the corners, stout iron rods are fastened and bent over the centre as shown in the illustration. On these I have trained vines, which add greatly to the ornamental appearance of the stand. Where the rods cross, a bird-cage or a hanging plant can be suspended. Such a table can be made cheaply at home by any one at all skillful with tools. Its proportion should of course be suited to the size of the window where it is to stand. Such a table can be used in a bay-window with much better effect than the ordinary stand or rows of shelves. Being placed low down, the plants are seen to good advantage, and are easily cared for. The larger plants should be arranged in the center, and the smaller ones along the edges. E. E.

Economical "Making Over" Things.

Many families have a knack of making a little go a great ways, in rendering their homes comfortable, even genteel. Calling upon such a family recently, I at first supposed they had bought some new chairs, but on closer examination found they had been cane-seated walnut ones, too valuable to throw away after the bottoms had given out. The girls had tacked on firmly some strong canvas in in place of the cane, then added several thicknesses of the same size cut from an old quilt, and tacked over these stout cotton to hold them in place. A strip of cretonne having stripes of pretty flowers, was stitched across a piece of reps, and formed the covering. When this was tacked on, the edge was hidden with upholsterer's braid fastened with brass-headed nails. The effect was very satisfactory. After the boys oiled the frames, those chairs were really prettier than many expensive ones I know of.—An old lounge, previously covered with hair-cloth, was treated in the same way, with the addition of a sofa cushion nicely embroidered. It is as good as new, and more attractive than it was previously.—The daughters showed me their "new carpet," made of two others. For the center an old sitting-room ingrain carpet was washed, colored brown, and the best portions sewed together. The border was formed from the best parts of a crimson and black bed-room carpet. The effect is more pleasing, to me at least, than a two-dollar-a-yard, bright-flowered carpet which another neighbor had just laid down. R.

Home Hints for Spring.

The holidays over, the short winter days lingering longer in the twilight remind the good housekeeper that now is the time to take account of stock, and to have all the plain sewing planned, and as far as possible finished, before warm weather.

Fashion changes little in bedding. Sheets and pillow cases can be cheaply bought ready made by machine, but they look much nicer when hemmed by hand, and wear better. Trimmings of cheap cotton laces on sheets or pillow cases are in bad taste. Shams are desirable to dress beds which are in use all the time, but they should not be too elaborate. Little trimming, and that very nice, is much preferable. It is fashionable to remove pillows by day, and leave only the bolster on the bed, with handsome spreads of silk or lace. Very many are making silk quilts of patchwork, and several manufactories supply bundles of pieces which are sold for this purpose. They are not the set figures of our grandmothers' times, but a lining is cut and the pieces are basted on, large and small, without any design except to harmonize colors, and these are feather-stitched together with embroidery silk. Some work patterns in outline on the plain colors. These quilts are very handsome, and with care should last through several generations. Very pretty imitations of eider down comfortables are made of soft wadding covered with some pretty shade of satteen or silesia, pale pink, blue, gray, or cardinal. They have five or six rows of quilting all around, about an inch apart, and stripes of quilting two or three inches apart through the center. Patchwork quilts of cotton, if made at all now, are usually of two colors only, dark and light. The old-fashioned comfortables, piles of which we used to see in our grandmother's closets, have given place to blankets, which are much more desirable, as they can be washed.

Bureau and washstand covers are among the most common pieces of fancy work, and are of countless designs. Among the prettiest, this winter, are those of crash or momie cloth, made in scarf pattern, with the ends in embroidery and drawn work, from a quarter to half a yard broad. They may be done with colored silk, but are much prettier when worked with the threads which have been taken from the material. The fringe, which is formed by drawing out threads, when the work is all done, has a broad heading made by alternately taking out and leaving seven or eight threads; and, over those left, working a cross-stitch or feather-stitch. Above this are broad, open patterns of drawn-work, and ribbon may be drawn through, or a bright color placed under. There should be a pin cushion cover to match. Mantel and window lambrequins are made in the same way, or they may be crocheted with fisherman's twine to imitate the Macramé work, which is so much more difficult. Any pretty pattern of knitted or crocheted edging can be used, and a fringe added, or colored tassels of chenille on each point.

Table linen, in a full, good supply of which a good housekeeper takes pride, is varied and beautiful enough to satisfy any taste. There are table cloths and napkins suited to every occasion, and every course from soup to coffee and fruit, with appropriate designs in colored or white embroidery; but an initial or monogram, worked in white, with or without fringed sides, which can be washed without fear of losing color, seems most desirable. Damask cloths of red or grayish brown are pretty and economical for breakfast and tea. The latest imported styles for napkins are long and narrow, like towels. These napkins protect the dress very perfectly, and are to be welcomed for this reason.

The large stores in the cities bring out their ginghams, prints and muslins in early spring, and it is well to make up plain summer dresses now. Styles which are simplest and can be done up easily are chosen for such goods. Plain blouse waists, plaited or gathered into a belt, a plain overskirt looped high on the hips, with an underskirt tucked or trimmed with gathered flounces, always laundry well.—For children a blouse waist, and skirt of two or three scant ruffles, with a broad sash of the material tied behind, is very pretty.

It is best to make up under-clothing early, if done at home. If one wishes a combination of corset-cover, skirt and chemise, which is popular and desirable, a close-fitting polonaise pattern, with the back seams cut off to an ordinary basque length, and two plain breadths gathered on and sewed into the long front side seams, will make a garment quite as satisfactory as those which cost two dollars and a half. ETHEL STONE.

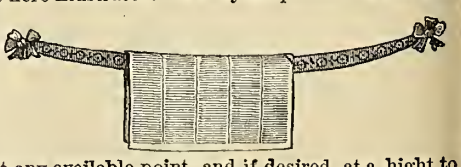
Fashions in "Twine-Work," Lamp Shades and Flowers.

It is wonderful what a variety of articles may be manufactured out of twine. There was never a greater demand for the Macramé cord, although the real tied Macramé seems to have had its day. The crocheted work is so much easier and quicker that most ladies prefer it, especially as it is almost as handsome as the knotted. One of the prettiest designs is a dainty little work-basket, either round or oval, starched, and formed over a tin pan. When quite dry and stiff it is covered with liquid gilding: a slip of card-board the exact size of the bottom, is covered with blue satin and fitted in, with a puffing of the same satin around the top. This makes a charming little article for a gift, or to sell at a fair. We have seen whisk-broom holders, work-bags, boxes, catch-alls, and bracket lambrequins, all crocheted of this cord, and heard it suggested that it would make excellent table-mats.

A simple and pretty design for a lamp-shade may be made of natural ferns, if they are gathered while young and pressed between blotting-paper. Six rounded sections, the proper length, square at the top, and graduating toward the lower part are cut out of glossy white paper, lined with pale pink silk, and pinked out in scallops around the edge. On these the ferns are arranged fastened with fine green sewing silk, and the lining caught to each section by a little fancy stitch. The top of the shade consists of two hexagons, made of card-boards covered with the pink silk, and edged with lace, between which the sections are fixed in. A round opening is cut in the top, to fit over the chimney, and care should be taken to have this large enough to prevent scorching. This shade can also be made very effective in spatter-work, on white Swiss muslin. Wild flowers are preferred now for decoration, or for corsage bouquets. Young ladies frequently discard the conventional roses and violets, for the simple yellow and white marguerite, buttercups, and above all the red clover blossoms, which fickle fashion has decreed shall be the popular flower of the season.

Holder for Newspapers.

A very simple, easily made holder for newspapers, is here illustrated. It may be placed on the wall



at any available point, and if desired, at a hight to allow one sitting or standing to glance over or read the pape Cut a strip of canvas a yard long, and two inches wide. Work in a cross-stitch pattern, line with calico, and bind each edge with ribbon. Sew a ring upon each end to slip over nails, and cover the rings with neat ribbon bows.

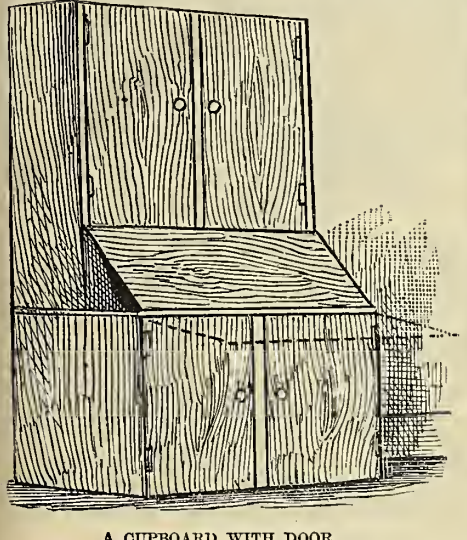
Pretty and Inexpensive Curtains.

A pretty and somewhat new way of using cheese cloth, or bunting, for bedroom curtains, is the following. For lining or foundation use Turkey red, or blue, or pink chintz. First make a straight lambrequin of the foundation material, and over this gather a similar one of the cheese-cloth or bunting. The latter may be tacked to the lining before hanging it. Gather it so as to leave a narrow heading. Edge both the lambrequin and curtains with inexpensive lace. Line the bands for looping back the curtains with the same color as the foundation, or use ribbon to match. If you have a plaster cast, three feet high or so, prepare a curtain of a yard of crimson canton flannel, by sewing on one end the small brass rings sold for this purpose. [Felt costs but little more, and holds its color much longer; velvet is still better, but it is more expensive]. A small, round wooden rod, stained or painted black, and varnished, is run through the rings, and fastened across the corner of the room. This forms a fine back-ground for the image. Its length should be such as to just touch the floor, and reach a little above the image.

N. H. C.

A Cupboard Front.

House-keepers are frequently troubled by dust settling upon table-ware standing on the dresser. To obviate this, we have had a door fixed to ours, which not only acts as a protection to the dishes, when closed, but makes a temporary rest or table when open. It is secured by a chain on each side, of the proper length to hold it on a level with the dresser. It turns on hinges, and gives the cupboard a desk-like appearance, and makes it look



A CUPBOARD WITH DOOR.

neater than the ordinary open cupboard. It is not at all difficult to construct one, using good pine, either stained and varnished, or painted, to correspond with the body of the cupboard.

Simple Hints for Busy Fingers.

Many an old lady, and young one too, finds no other evening employment so pleasant as knitting, which requires little thought or eyesight. For such fireside work, a pretty piece of fancy work is a cover for a sofa cushion, knit of narrow silk strips. The foundation is of common cotton yarn, knit on medium-sized needles. Knit three rows, then draw through each loop on the next row a bit of silk, cut in strips of equal length and width. Arrange the colors according to fancy. The yarn must be drawn very firmly down, to keep the silk in place. Old ribbons and silk remnants work in as well as new.

The matting that comes round tea chests is good for a great variety of fancy purposes. One of the nicest is a newspaper case. When handsomely made, these bring a high price in New York. A square of the required size is cut out, on which a beautiful design is painted in oil colors, or else embroidered in crewels. A larger piece of matting forms the back, and they are joined together by triangular pieces of silk, five inches wide at the top, narrowing off to nothing, and all is bound with narrow ribbon the same color as the sides, or else trimmed round with quilled satin ribbon.

Salt and sugar jars, and common clay flower-pots, are now ornamented in a very artistic manner, simply with flowers made of putty. These are molded in the hand, fastened on the pot, and then tinted. For a first attempt, choose some single flower, as a daisy or wild rose; but there is no limit to which this art can not be carried, and with care in selecting and applying, these jars will last as well as those fired.

So-called "Limoges ware" is now made by painting the vases with oil colors and covering with a kind of varnish, which takes the place of burning.

A new freak of fashion for the china closet, particularly if one has old, handsome china, is to display it behind a half-drawn curtain. A novel and inexpensive one can be made of a partially worn bed-spread. Soak it in water colored with coffee, to give it a rich, creamy tint, and edge with a band of Turkey red. Then carefully cut out of cretonne, flowers and sprays of bright colors, with their foliage and buds. Arrange these for an inside border, and buttonhole them round with embroidery silk, working the stems in outline sketch. It makes a beautiful curtain, quite ornamental in a dining-room, hung with brass rings on an oak rod.

Kindlings in Paper Bags, etc.

Having for more than a generation been on the constant outlook for little as well as large devices that will in the slightest degree add to human convenience or comfort, and having continually asked our readers to write us of anything they practice or observe of the kind not likely to be known by all others, it sometimes seems as if the whole catalogue must be exhausted. Yet there are doubtless scores and hundreds of things that have not come to universal knowledge, and we reiterate the oft-repeated request for contributions in this line from all readers, even on matters so simple as the following. Calling by chance at the humble but pleasant cottage of a co-worker of by-gone years, the writer was welcomed to the "Prophets' Chamber," which we almost feared to enter on a cold night, after many chilling experiences in "spare-rooms." In this plainly but neatly furnished chamber is a small but ample stove, a box of pine wood behind it, a few hardy plants by the window on an easily moved support; half a dozen inconspicuous but strong hooks or pins, very convenient for hanging up one's clothing on when retiring, and so on.

But the new thing to the writer was found inside the wood-box. The paper bags brought from the grocers had been preserved, and some of these, holding one to two quarts, were filled with shavings, bits of wood and chips, and the open ends twisted together, or tied with a bit of thread. So on this cold morning it was only necessary to spring out of bed, place one of these filled bags in the stove, throw in a few sticks of wood, touch a match to the end of the bag, and back to bed again—all done in less than a minute. In quick time a warm room was ready for dressing in entire comfort. A dark enameled kettle on the stove, found ready filled, soon changed the temperature of the half frozen water in pitcher and wash basin. Before leaving said room, we wrote this item, partly in gratitude, but more for the benefit of tidy housekeepers, who desire a convenient mode of keeping kindlings in a chamber, or elsewhere, without the usual litter.

A Nice Breakfast Dish.—Let raw potatoes, sliced as thin as possible, stand in cold water for an hour and a half. Put them in a pan with a large lump of butter, some pepper and salt, a little flour, but not enough to make them sticky, and fill the pan half full of fresh milk. Bake slowly in a stove oven for two hours, or until done.

Home-Made Toilet Table.

A very substantial, convenient toilette table, similar to the sketch, can be made at home with little outlay of time and money, by any one having any knack at using a saw, hammer, gimblet and

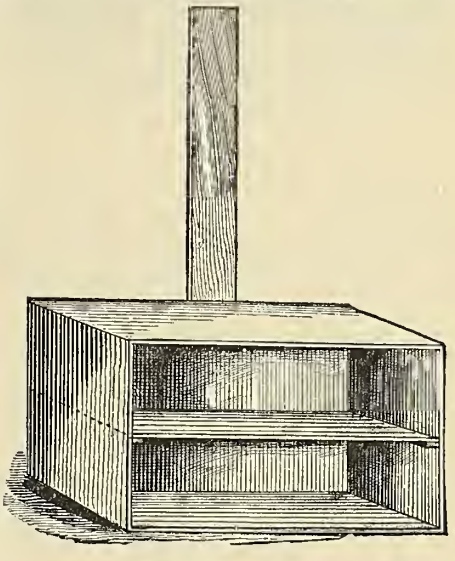


Fig. 1.—THE BOX.

screw-driver. It may be more or less tasteful, according to the skill of the worker and the covering material used. Selecting a strong packing box (fig. 1) of a convenient size, strengthen it with a few screws along each joining edge, and screw a strip on each side to support a shelf. Upon the back screw an inch-thick board firmly, of suitable hight to support a mirror. Now cover with any available material of a color that suits the taste. Flowered chintz, a gray ground with pink roses over it, is very pretty and serviceable. A curtain around the front and two ends is securely tacked along the upper edge. A piece, the exact size of the top, is edged around with a ruffle two inches wide, and stretched over and tacked so that it hangs just below the edge. The mirror is held firmly by screwing it to the upright piece at the top and bottom. The mirror should be as tall as possible. If the money to be expended is limited, use most of it on the glass and have a plainer frame. A carpenter

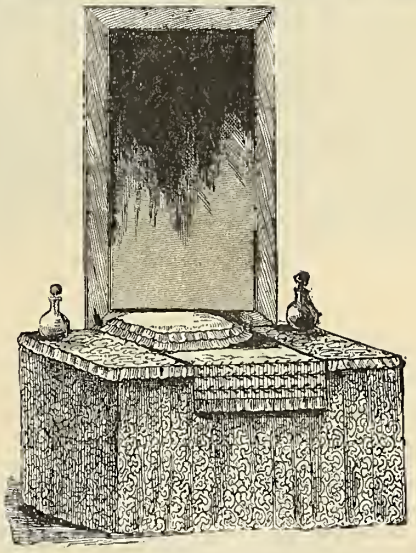


Fig. 2.—THE STAND COMPLETED.

will make a good-sized pine frame for a trifle, which can be stained to look like walnut thus: Give the wood two coats of a solution of about half an ounce of permanganate of potash to a quart of water. In a few minutes wash off with water, dry, and varnish.—A mat of white linen worked with bright colored thread is laid on the top so that the fringed ends hang over the front. Before the mirror, place the pin cushion, worked to correspond with the mat.

MRS. BUSYHAND.



Out of the Waters.

BY AGNES CARR.

"Charlie, what's a moggage?" asked little Naney Linn, as she and her brother pieked their way over the mile of muddy roadway between the stone sehoolhouse and their rather isolated little home, on the pieturesque bank of a broad river.—"I dunno; some animal I reekon," and Charlie shied a stone into a big puddle at the path side.—"I don't believe it's 'xaetly an animal," said thoughtful little Naney slowly, and then dropping her voiee mysteriously, "I think it must be a giant or a dragon."—"Ah! mebbe it is," assented Charlie, pleased at the romantie idea, a dragon with a fiery mouth, "for pa said, if 'twas'nt for the moggage we eould have a new roof on the house; and the fairy book dragons swallowed horses and eows, and sometimes buildings."—"And wheu I asked mortgage."—"Oh! ma, will you see it?" asked Nauey, with a frightened faee.—"What dear?"—"The moggage."—"Yes, I expeet I shall, and thank Heaven, we have the money to pay this half, though it has been hard work. But you'll be quite safe with Stumps in the house, and we'll be baek by noon to-morrow."

An hour later, the old yellow stage drove up to the door, and Charlie and Naney waved farewell to their parents, feeling quite important at being eonsidered big enough to keep house.—"Be sure and loek the door to-night, and don't set anything on fire," ealled baek papa.—"And don't ruu outdoors, for it rains again," said mamma, as she donned her waterproof, and the shouts, "Yes, we'll be very eareful, good bye, good bye!" The little eouple watehed the eoaeh out of sight, and then sat down by the kitehen fire to think what they should have for supper.—But when the twilight shadows gathered and a heavy rain poured down, Naney looked sober, and was sure the parlor earpet would be spoiled; and at last both beeame frightened, as the water dashed in more wildly.

"We must go upstairs," said Charlie.—"But let us take something to eat," said Naney, "for you don't know when we ean get down again." So wading to the eupboard they paeked a basket with bread, meat and milk, and then, followed elosely by Stumps, made their way with some diffieulty up to the floor above, as the rising water already eovered the seeond step.—"Dear me! what would pa and ma say if they eould see us now," sobbed Naney.—"We must sit up all night and wateh the house," said Charlie; "but don't ery, Naney, the water won't eome up here, for it has stopped raining, and somebody will eome to-morrow to take us out. Let's play Robinson Crusoe, and pretend we are east away on a desert island, and Stumps ean be our man Friday.—But Naney would not be eomforted, and at last sobbed herself to sleep with her



A FLOOD THAT BROUGHT AN UNEXPECTED BLESSING.

Drawn and Engraved for the American Agriculturist.

ma to buy me a silk dress, like Kittie Allen's, she sighed and said, 'No, dear, not while the moggage exists.' It must be a horrid ereature not to let a little girl have even a niee froek."—"I wish I eould eut him in pieces, and drown him," eried Charlie, uow quite exeited, "and now's a good time, for see how high the river is." Sure enough the mighty stream, swelled by heavy spring rains, and the melting snow on the hills above, was rushing turbulently aloug, filled with floating iee eakes, erashing against eaeh other.—But now "Stumps," the ugliest looking dog alive, with only an iueh of tail, and a pair of torn and battered ears, but the ehildreu's dearest friend and playmate, eame bounding to meet them, and diverted their attention.

On entering the house they found mother preparing for a journey, and their father eounting a pile of bank bills on the old pine table.—"We are goiug to leave you alone to-night," said Mrs. Linn, "for your father wants me to go up the road with him to Squire Fielding's, to pay the interest on the it seemed a little lonely, though the bright fire and eomieal old Stumps tried their best to make it eheerful. When the tea-things were put away Charlie and Naney returned to the mysterious "moggage," wondering why it made their mother so sad, and their father's faee wear sueh a worried, eareworn look whenever it was mentioned.—"How the river roars to-night?" said Nauey, about eight o'eloek—"And see! what is that!" exelaimed Charlie, pointing to a tiny stream stealing under the door, and triekling aeross the floor. "The river must be risiug!" He rushed to the window, but the dense darkness obseured everything.—Before long the whole floor beeame wet, and the ehildren eurled their feet on the ehair rungs, while Stumps sniffed uneasily, as if he thought something was wrong. The water kept on, ereeping, ereeping up; and eoal seuttles, brooms and baskets began to swim round eomieally. Cbarlie thought it was "jolly fun," and taking off shoes and stoekings paddled round after the various artieles; but arms around Stumps' neek, with her brown eurly head pillowed on his rough eoat.—Charlie tried to keep awake, but finally threw himself on his little bed, and slept soundly until the morning sun eame streaming in.—All things seem brighter by daylight, and Naney awoke quite her happy self again, though both ehildren were startled when they looked out of the window. They were, indeed, literally surrounded by water, whieh was up to the top of the front door, and eovered the garden fenees, while the angry stream seemed earrying all things before it. Trees torn up by the roots, dead bodies of horses, eows, and sheep, barrels of potatoes and turnips, ehairs and tables, all went sailing by, being whirled along, or eaught betweeu eakes of floating iee. "Oh! see that poor little piggy!" eried Naney.—"And how funny those red apples look, bobbing about," said Charlie; and running for his fish-pole, tried to drag some of the things towards him.—"But they were horror strieken when in the outer channel, where there

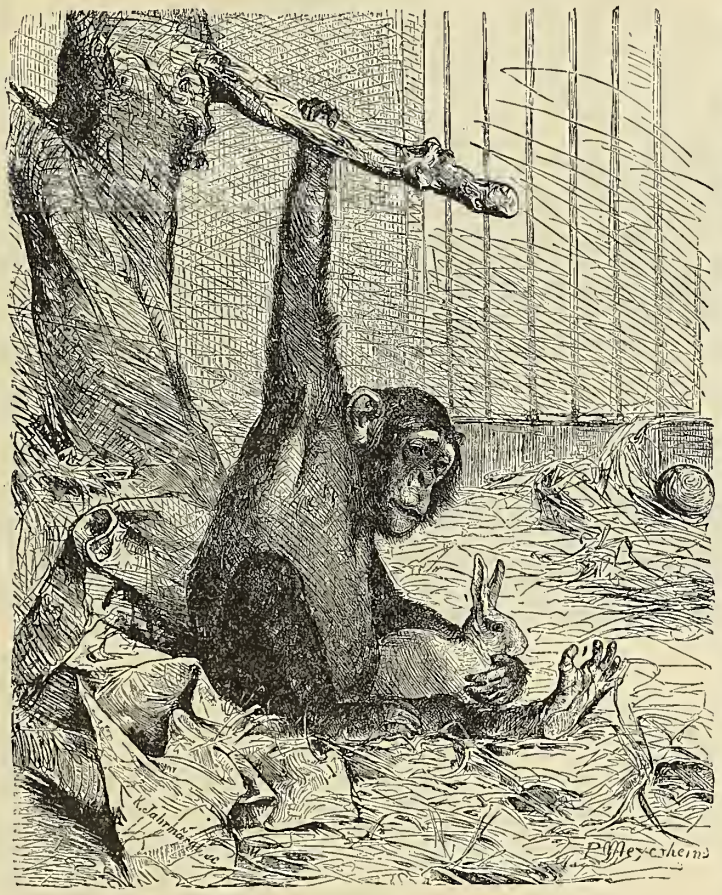
was less ice, a small house went hy, with an old woman and a child screaming from an upper window, and though they had escaped themselves they were powerless to help these unfortunates.

Stumps, meanwhile, was in a great state of excitement, pricking up his dilapidated ears, wagging his scrap of a tail, and occasionally making sudden dashes out into the water, returning with a drowned chicken, or a soaked cabbage in his mouth; for he was a fine swimmer, and in summer spent almost as much time in the river as on land.

They were very glad of Nancy's bread and meat, and had just eaten it, when a curious object caught their eyes.—"It's a cradle," said Charlie.—"And oh! there is something in it!" exclaimed Nancy. "I see it move. Oh! can't we save it! here, Stumps, Stumps, catch it, old boy!"—In a moment the dog was by her side, and with a short bark as though he understood, plunged into the seething water, and swam toward the little ark floating perilously near some crushing ice blocks. He reaches it, and clutches one rocker with his teeth, but cannot draw it along, and casts beseeching glances toward the window, from his honest brown eyes.—"I must help him," cried Charlie.—"Oh! no, no, don't go," pleaded Nancy; but as a faint wail of a child reaches their ears, Charlie steps upon the window ledge and springs upon a huge cake of ice that has lodged against a tree, near the house. It cracks ominously under his weight, but does not give way; and running lightly and swiftly to the extreme edge of the ice floe, and bending far over, he manages to seize and drag toward him the frail cradle boat, in which he sees snugly nestled a fair blue-eyed baby, with tears on its cheeks and its rose-bud mouth drawn up in such a pitiful way it goes straight to his heart.—There's no time to lose, for already wide gaps appear in the ice behind him; and springing to his feet, he catches up the tiny bed, and makes a rush for life back to the window where stands Nancy shivering with fear.—She holds out her arms and grasps the cradle, baby and all, just as the ice parts, and down goes poor Charlie, and disappears under it. With a scream Nancy dropped on the floor, and it would have gone very hard with Charlie if faithful old Stumps had not been right at hand. In an instant he was after him, dragged him into clear water, and swam gallantly toward the window, where, though chilled through, Charlie was able to scramble in, to be received with a warm embrace from Nancy, who declared "he was the bravest boy, and Stumps the very dearest dog in the whole world;" adding, "but do hurry and change your clothes, or you'll catch your death cold.—He hastened to do so, and soon returned in his Sunday suit. "Just see, the sweet little baby you have saved," said Nancy, who was holding it in her lap by the bedroom fire—which fortunately had not gone out—and feeding it with with warm milk. The little thing drank eagerly, laughing and cooing so prettily the children were charmed, and at last it went to sleep, cuddled up in a warm blanket, and watched over by Stumps, who licked the soft white cheek and seemed to consider the wee stranger his especial property.

"I hope we can keep him always," said Nancy, while Charlie, feeling none the worse for his sudden bath, examined the cradle, which was daintily furnished with snowy linen and a soft silken coverlet, and discovered a square tin box hidden under the mattress.—"Somebody has packed away their treasures here," he thought, lifting the lid but found nothing but bundles of papers tied up with red tape. "Pshaw! I wonder what they wanted to save these dusty old things for."

So the day wore away, but the children were quite happy with their new plaything; for the water baby laughed and played, and seemed quite contented. And towards evening, when little "Moses"—as Nancy named him because he came out of the river—had gone once more to slumberland, they heard voices without, and a boat was rowed up to the window, and their papa and mamma, with anxious faces, entered hurriedly, and clasped their boy and girl in their arms. "Oh! I have imagined you drowned, or frozen, or carried away to the sea, all day," cried Mrs. Linn.—"I hope the poor Squire will be as happy in finding his little one," said her husband, returning to the boat, and helping out a gray-haired man who looked the "picture of despair." "Come in, Mr. Fielding, and rest awhile, before continuing your search. You see," he explained to the children, "Squire Fielding's house is even nearer the river than our's; and while he and his wife were engaged moving out some things, the cradle in which



THE CHIMPANZEE AND HIS PET.

his baby was sleeping was washed out of the door by a sudden wave, and went floating off down the raging stream, nobody knows where."

"Did it have a blue silk quilt?" asked Charlie, excitedly.—"Yes, yes," exclaimed Mr. Fielding, "have you seen it pass here, was it safe?"—Before Charlie could reply Nancy brought the infant from the corner and placed it in its father's arms, who, overcome with joy, could scarcely speak a word.—Then the story of the rescue was told, and Charlie and Stumps were so overwhelmed with compliments it was hard to tell which was the happier or prouder of the two.—"I offered a thousand dollars to whoever saved my child, and you and your dog have fully earned it," said Mr. Fielding.—"Oh! no," replied Charlie, "Pa won't let me take money for a little thing like that!" At which Mr. Linn nodded approvingly.—"Then I must reward you in some other way. Did you find a box in the cradle?"—"Yes, sir. Here it is, safe and sound." Opening it, Squire Fielding selected a paper which he placed in Charlie's hands, saying, "Give that to your father, and tell him his son has cancelled it forever."—Not understanding, the boy handed the document to Mr. Linn, who exclaimed with joy, "It is the mortgage, wife! and our home is our own again! Oh! what a weight this lifts from my shoulders!" while Nancy whispered, "Mamma, is the dear baby's father the "dreadful moggage?'"—"No darling, he is a good, kind man, the mortgage is dead, and will never trouble us again."

So the big freshet did some good after all! and though Nancy was sorry to part from the blue-eyed baby, and the parlor carpet was spoiled, Mr. Linn always says, "Thanks to Charlie and Stumps, the great spring flood washed our farm clear of all debt, and left us the happiest, most independent family in the whole country side."

The Chimpanzee.

The monkey cage at a menagerie, and the Simia (Monkey family) house in the zoological gardens, are always surrounded by crowds. All of the monkey family bear more or less resemblance, if not in appearance, at least in their ways, to those of human beings, and spectators seem to never tire of watching them. A small section of this family comprises the Gorilla, the Orang-outang, and the Chimpanzee, animals that are nearer man in size and also in their appearance than the other monkeys. Yet the skeletons of these differ in a great number of important points from that of man, and those naturalists who claim that there is a relationship between these and men fail to prove that it is a close one. Looking at the portrait of the Chimpanzee here given, you will probably not care to claim it as that of a very near relative.—The Chimpanzee is a native of Western Africa, and as it does not endure a change of climate very well, it is seldom seen in this country. It differs from the other two above-named in not living in trees. When standing upright it is from three to five feet tall, and has very long arms. It is covered with black hairs on the body, with some gray ones on the face. None of these naturally walk erect, and in walking they do not set the palm of the hand on the ground, as do other monkeys, but the knuckles, hence this group is called "knuckle-walkers;" they also touch the ground with the outer edge of the foot. The accounts formerly given of these apes that they arm themselves with sticks and stones, go in large bands to attack the villages of the natives, and capture and carry off women and children, have been found by later travelers to be only traditions. They feed entirely upon vegetables and only molest the natives by stealing their rice and other crops. It is said that the Chimpanzee is one of the few animals that makes use of an implement; it uses a stone when it has a hard nut to crack. When captured young the animal is very lively and playful, but as they grow older in captivity they often become sullen and very ferocious.



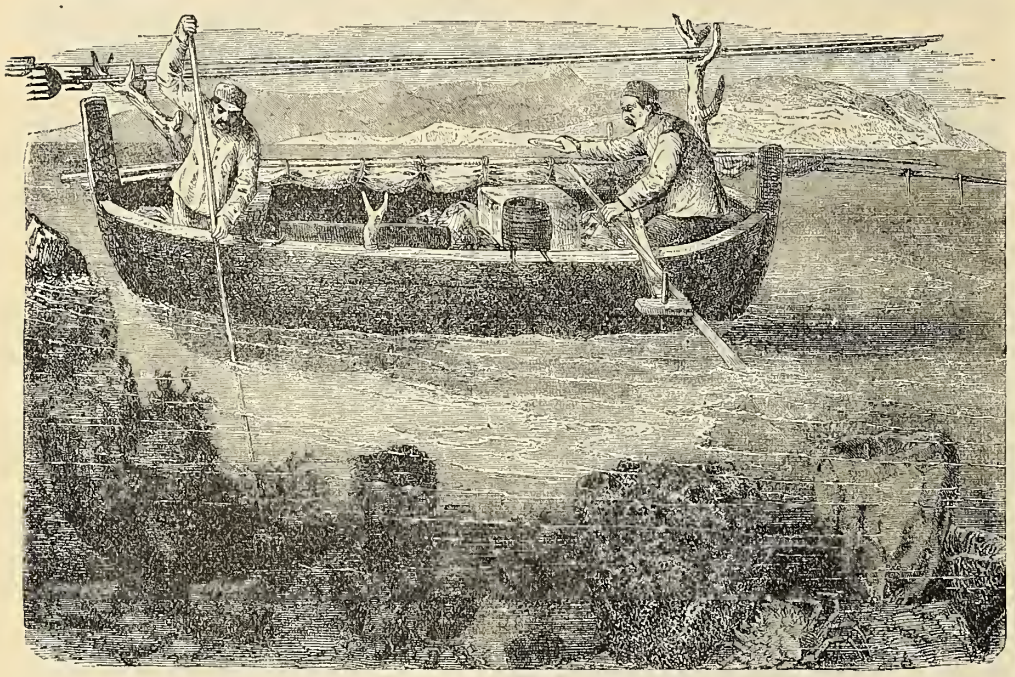
A CLUSTER OF GEMS NOT USUALLY DISCOVERED IN THIS HIDDEN FORM.

The Doctor's Talks.

IS SPONGE A VEGETABLE OR AN ANIMAL?

A young correspondent, in sending some questions about sponge includes the one given above, which has frequently puzzled much older persons.

At one time naturalists regarded it as a plant, but at present it ranks as an animal, or rather it is



FISHING FOR SPONGES.—*Engraved for the American Agriculturist.*

a collection of animals. The material we call sponge is only the framework of the mass. This, when the sponge is alive, is covered on the outside by a slimy or jelly-like substance which lines the cavities also, and is the living part of the sponge. It is made up of numerous individuals belonging to the lowest order of animals. The sponge shows few signs of life beyond keeping up a current of water, which passes in by some of its numerous small openings and is forced out through others.

WHERE DO SPONGES COME FROM?

There are a great number of different kinds of sponges besides those of the shops, and some are to be found in nearly every sea, though they have so little resemblance to what you ordinarily see that you would hardly suppose them to be related. The finer kinds come from the Levant and Mediterranean, while the coarser sorts are from the West Indies and Florida. The Turks gather them by diving, while the sponge-fishers of the islands along the coast of Greece use a kind of fork fixed to the end of a pole, as seen in the engraving. Those collected with the fork are apt to be injured. Besides, the finest kinds are found in water fifty feet or more deep and can only be reached by diving. To prepare the sponges they are covered with sand when the jelly-like portion soon decays; after this is removed they are thoroughly washed and dried. The finest quality of sponge is very costly. It is sold by weight, and the dealers at Smyrna, the principal market, understand how to make it hold a great deal of very fine sand. Indeed, when a case is opened and the sponges are beaten, the sand often far outweighs the sponges.

MUCILAGE AND PASTE.

"B. R. R.," Baltimore Co., Md., wishing to "connect loose papers," and "make a smooth job," asks "if there is anything better than the mucilage sold by stationers. If not, what mucilage is the best."—The ordinary mucilage is a solution of cheap gum Arabic in water, with a very little carbolic acid, oil of cloves, or something else added to prevent mould. If mucilage is used to join two pieces of paper, it becomes hard and stiff when dry, and is not near so good for this purpose as common flour paste, or better still a paste made with rice flour. Such paste will keep a long time if a few drops of oil of cloves are added, and it is preserved in a closely-covered jar or wide-mouthed bottle to prevent drying. For ordinary mucilage procure at a drug store some cheap gum Arabic, pick out all the sticks and other foreign matter, and placing it in a bottle, add rather more water than enough to cover it and cork the bottle well; let it stand where it can be turned upside down and not fall over. Invert the bottle daily or oftener, and the gum will soon dissolve. If in a hurry for the mucilage the gum will dissolve much sooner in a small sauce-pan set on a warm part of the stove and frequently stirred. A mucilage for general use that I like better than that from gum Arabic, is made from dextrine, from which much of that now sold as mucilage is manufactured. This is starch that has been so altered by treating it with weak acid that it will dissolve in cold water. It may be used like gum, to form a mucilage of the desired thickness, with either cold or hot water. This keeps well in a bottle or jar, and has all the good qualities of flour paste and none of the bad ones of mucilage made of gum Arabic.

ABOUT THE WEED LISTS.

When in September last I asked for lists of weeds, I supposed that I might have as many as fifty or possibly a hundred. To my great surprise, I find that I have five hundred and eighteen! These vary from lists of a dozen or two, all the way up to those containing a hundred and fifty plants. Though I specified weeds of the farm and garden, a number have regarded every wild plant as a weed. In lists of this kind only those names of plants troublesome to cultivation will count. To examine this immense pile of letters, and count and compare the lists require an amount of labor that I have not yet found time to give. I hope to get through with it in time to announce the decision in the back part of this number. If I do not, it will appear in the next. THE DOCTOR.

Among the Wolves.

Naturalists are not agreed as to our Gray Wolf, some claiming that it is a variety of the wolf of Europe, while others consider it as distinct. They are sufficiently alike in character and disposition to make each in its country despised and dreaded. Many suppose the European wolf was the original of the dog, and there are curs enough with wolfish character to make the parentage seem probable. From being bold and wonderfully daring in pursuit of its prey, when once entrapped it becomes the most abject coward. It is stated that a poor woman fell into a pitfall-trap, and a wolf which had previously been caught was so completely cowed at finding itself a prisoner that it lay quietly all night, making no attempt to injure the woman. In its build the European wolf is lighter than the American, with longer legs and ears. Its color is gray, with a tinge of fawn-color, with many black hairs. In Siberia and other high latitudes it becomes almost white. The wolf in the engraving has evidently been on a foraging expedition, and looks pleased at the prospect of a hearty meal. The Prairie Wolf or Coyote is much smaller than the Gray Wolf; it is abundant on the Western plains, and makes hideous noises at night.

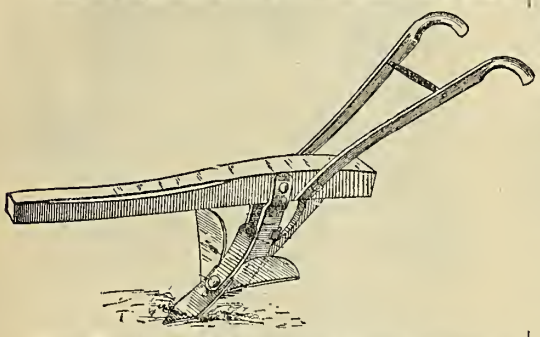


THE WOLF (*Canis lupus*).—*Engraved for the American Agriculturist.*

It is fond of the domesticated dog, and will follow an emigrant train which has a dog, for many miles over the prairie. It is said that at nightfall the Coyote and the dog will frequently play together.

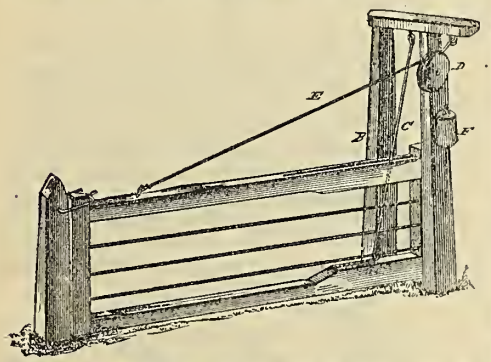
OUR RECORD
OF
Recent Agricultural Inventions.

Plow.—Henry O. Roop, Carrolton, Ga., Nov. 20; 288,666.—This invention consists essentially in a plow point carrying two independent wings, which may be fastened together and to the plow standard by a single



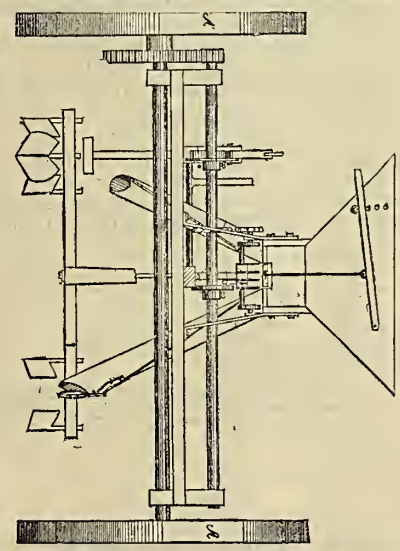
bolt. These wings form the mould-board of the plow, or when desired they may be adjusted to convert the plow into a scraper; or the wings may be fixed so that one will act as a scraper and the other as a land turner.

Automatic Gate.—William Thornton and Alfred Ferris, Elkhart, Ind. Nov. 13; No. 288,601.—This gate is hung by the supporting rod, *C*, and the rope, *E*, running over the pulley, *D*, and carrying the weight, *F*. When it is desired to open the gate, the latch is raised, the falling weight causes the gate to slide back, and by the action of the pivoted rod, *C*, and the arrangement of the uprights, *BB*, the gate is swung around at right angles to its first position, so as to leave the space it previously closed free for the passage of any vehicle. The



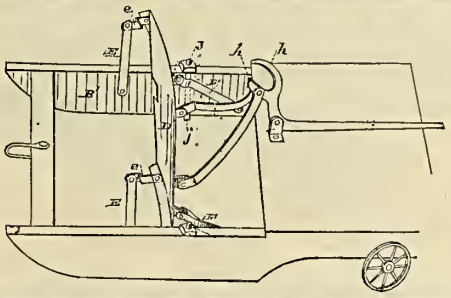
advantages claimed for this gate are its simple construction, its easy operation, and the absence of all complicated mechanism that would be liable to get out of order.

Potato Planter.—H. D. Herrington, Hoosic, N. Y. Nov. 13; No. 288,237.—Mr. Herrington's aim is to improve the class of potato planters employing a hopper from which potatoes are delivered to a platform and thence dropped into a spout, which delivers them into a furrow behind a furrow opener, there to be covered by a



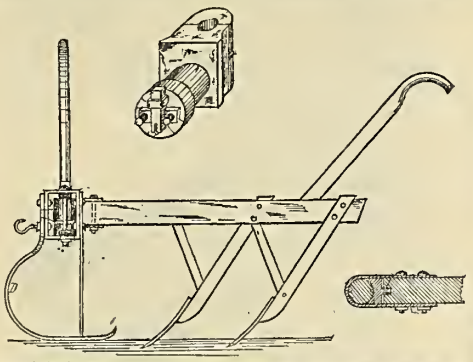
follower. The improvements claimed lie in the mechanism for operating the valves in the potato holder and the spout, and the combination of these parts with the platform. The mechanism is operated by gearing connected with the traction wheels. The figure shows a front elevation of the operating portion of the potato planter.

Dirt Scraper.—D. A. Faulkner, Sacramento, Cal. Dec. 18; No. 290,410. The frame, mounted on wheels and runners, supports a peculiarly hung scraper, which, by means of the lever *h*, can be raised and turned to a vertical position for dumping. The engraving shows the scraper-bowl raised, and the means by which it is thrown into and out of position for working. When *h* is upright, the notch in the upper edge of the bowl rests between the curved prongs *h*; the arms *i*, lie nearly parallel with the bottom of the bowl, the rear links *f*, are nearly horizontal, and the front links *e*, are inclined rearwardly to their joints *e*. In this position the strain



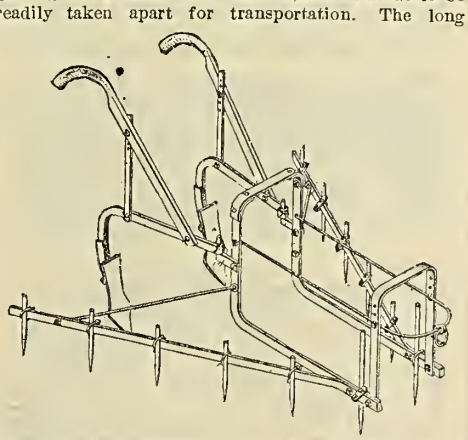
against the bit is in a line directly against the rear links *f*, and the bowl cannot be forced back. The amount of the load is regulated by means of the stops *j*, and the bolts *g*. The mechanism is simple, easily adjusted and operated, strong, and not liable to get out of order.

Cultivator.—John M. Blade, Alpha, Ill. Nov. 20; No. 288,764.—This invention relates to the class of machines known as parallel or tongueless cultivators, and



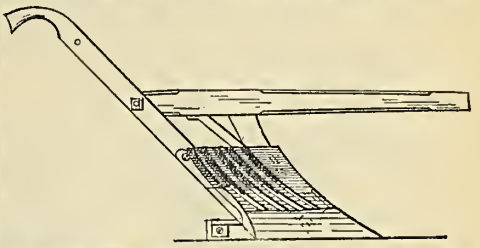
consists in the manner of connecting the plow beams to the beam-yoke, and the runners to the same yoke; the aim being to form a cheap, strong and effective connection between parts where there is great strain, while at the same time the coupling permits of all the movements common in this class of cultivators. The figure shows a side elevation of the cultivator.

Combined Harrow and Cultivator.—L. A. John, Dunlap, Kansas. Dec. 4; No. 289,659. The construction of this machine is clearly shown in the engraving. It is made of iron bars, bolted so as to be readily taken apart for transportation. The long



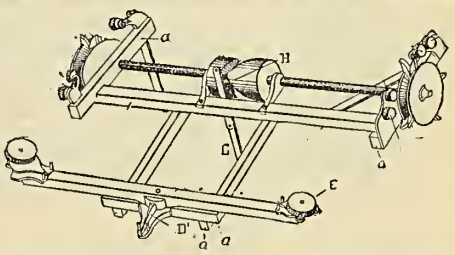
teeth at the front may be set low down to the bottom of the furrow in cultivating listed corn. The plow standards are hung so as to swing freely on pivots, and thus may be brought close together or held wide apart, as the nature of the crop may require. The claims cover the frame of angular bars connected by the arched bar in front, and a cross bar in the rear, both being detachable; also the construction, connection and bracing of the draft-clevis and harrow-beams, and the mode of hanging the cultivators in the combination also.

Plow.—Frank Chevalier, Lexington, Ky. Nov. 20; No. 288,776.—In this plow the mould-board is divided into prongs and fingers, to adapt it for use in sticky soil, and



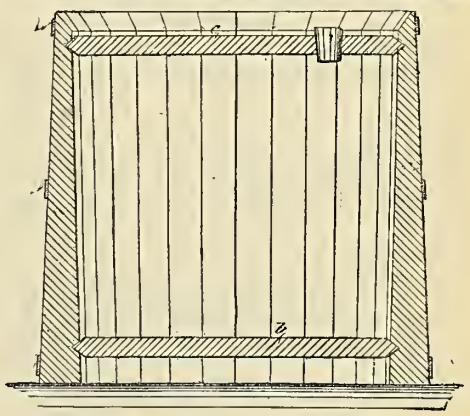
for digging potatoes. A special feature of the plow is the brace which supports the mould-board at its outer edge, and forms a means of attachment for one of the handles. The advantages claimed for this plow are in its simple construction, lightness, cheapness and adaptability to the uses named.

Check-Row Dropper.—J. H. Warren, Burlington Junction, Missouri. Dec. 25; No. 290,950. The principal claims of this patent lie in connection with the roller *a*, and the guide-bar *d*. The pivoted lever *c*, has at one end a pin *h*, which projects in the cam-slot *a*, of



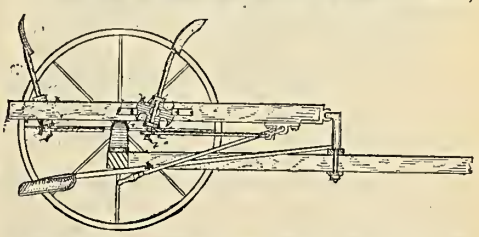
the roller. The other end is connected with the dropping slide of the planter. The bearing of the pin in the cam-slot as the roller turns, gives to *c* the desired rocking motion. The bar *d*, carrying the guide-pulley *e*, is pivoted centrally, and by means of the spring-arm *d*, is made capable of the oscillating motion desirable in check-rowing machines, on account of the uneven feeding along the wire, due to the roughness of the ground.

Butter Tub.—H. F. Coombs, Charlottetown, Prince Edward Island, Canada. Dec. 4; No. 289,390. By using staves thin at the top, and thick at the bottom, Mr. Coombs makes a butter tub of the conventional shape outside, yet widest at the top inside. The hoops



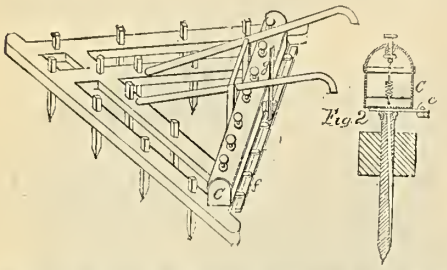
cannot slip off in transportation, and when the tub is to be emptied, the butter can be turned out in bulk; also, the hoops can be loosened, and the cover or top removed without turning the tub over. It would seem to be well suited for holding butter for distant shipment.

Cultivator.—N. H. Williams, Joliet, Ill. Nov. 18; No. 288,289.—The special feature of this invention lies in the mechanism by which the plow of a cultivator may be turned so as to throw the furrow in either direction,



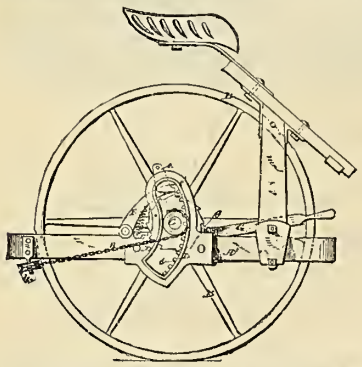
at the will of the operator. The figure represents a longitudinal section of a cultivator, showing a side elevation of the rocking bead and its connections, by means of which the plow is deflected to either side.

Seed-Drilling Harrow.—A. M. Knell, Elliott City, Md. Dec. 18; No. 290,244. A harrow for drilling in clover or grass seed, especially when harrowing grain. The engraving shows a harrow with the improvements applied; also the interior construction of the hoppers and teeth. The drill-teeth are channelled for the passage of the seed; at the top of each is the hopper *c*,



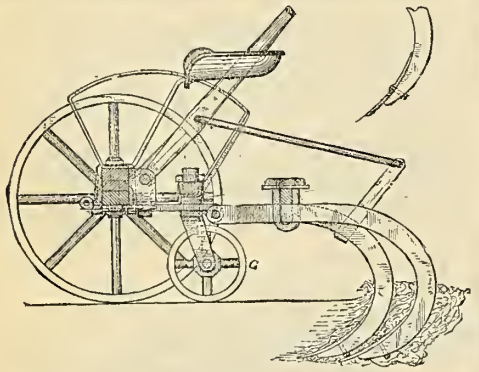
with a cut-off valve and a handle connected with the bar *x*, which is surmounted by a hand-lever *g*, by which the valves of all the drill-teeth are operated. The claims cover the construction and operation of the hopper as applied, and also with modifications which enable the improved teeth to be applied to an ordinary harrow.

Harvester.—J. F. Seiberling, Akron, Ohio. Dec. 18: No. 290,484. The engraving is a side elevation of the drive wheel and frame from the stubble-side of the machine, showing the principal parts in which improvement is claimed, that is, the means for adjusting the frame and platform upon the drive-wheel, whereby the adjustment of both wheels may be made simultaneously. The improvements consist primarily in securing toothed segment brackets upon opposite sides of the drive wheel,



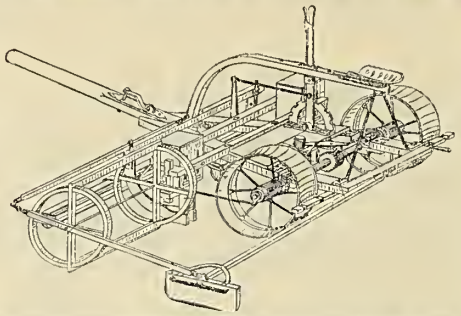
and on its axle, which is provided with toothed gears for engaging the brackets, also in securing to the end of the axle a drum, upon which one end of a chain is wound, the chain having connections with the platform and the grain wheel, whereby the adjustment of the drive-wheel axle effects the adjustment of the grain-wheel upon its frame supports. Improvements are also claimed in the construction of the grain-wheel support, and in the means for adjusting it.

Cultivator.—B. K. Nichols, Lower Lake, Cal. Nov. 27; No. 289,127.—This invention applies to two-wheeled cultivators, and is intended to improve the apparatus for raising and lowering the teeth, and the means for keeping the machine level, preventing its burying itself behind, helping to hold it on a hill-side, and otherwise facilitating the operation of the machine.



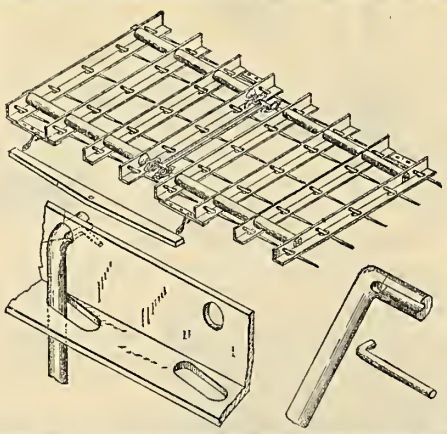
The figure shows a cross-section of the machine. The improvements claimed lie in the swivel trail-wheel, *G*, which is pivoted to the cultivator-bed in front of the drag-bars, and directly in rear of the axle, and in the shape and connections of the frame-bars, drag-bars and rock-shaft. The advantages gained by the invention are thought to make this machine particularly available for the cultivation of vineyards and similar places.

Corn Planter and Marker.—M. M. Clough, Carlisle, Iowa. Dec. 18; No. 290,320. This machine drops the corn simultaneously in two parallel rows, at regular intervals of time and space, and at the same time marks the ground for equidistant and parallel rows, and also check rows. The improvements claimed consist: 1st. In the manner of forming a rigid carriage (with wheels at the rear end and runners in front), by means of metal sections that serve as axle bearers, together with an adjustable caster-wheel to lift the runners as required in turning and starting rows evenly. 2nd. In the manner of forming and applying the markers. 3rd. In the manner of combining and adjusting the heels of



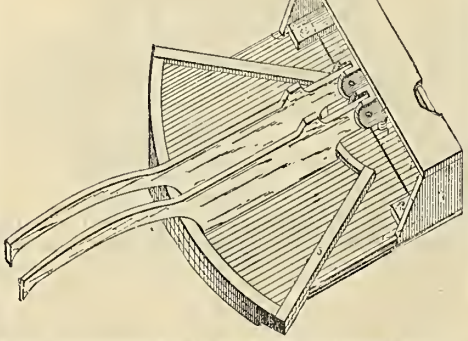
pivoted runners with the seed-boxes to regulate the depth of furrows. 4th. In combining a land roller with the carriage to smooth the ground and keep the runners in the soil at a uniform depth. The engraving shows the machine with the several improvements as applied.

Harrow.—C. A. Brostrom, Rock Island, Ill. Dec. 18; No. 290,525. The inventor aims to improve the construction of harrows with pivotal teeth, so as to do away with wooden tooth-beams, and at the same time make a strong, light and durable harrow, requiring no staples or similar devices for holding the teeth. The engraving shows two sections of the harrow, with enlarged portions of tooth and tooth-beam, showing their construction. The beams are of angle-iron, with slots and holes for the



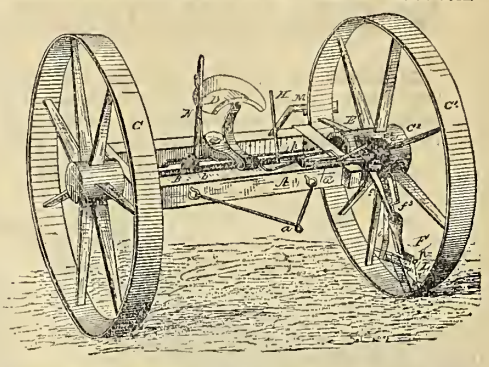
teeth, the upper end of which is bent at right-angles to the body. By attaching the teeth as shown, the teeth have a certain play in the slots, and are less liable to break under strain, than when fastened to the bottom of the beam. By reversing the draught the harrow can be used either as a sharp or as a smooth harrow, as desired.

Dough or Butter Worker.—W. H. Bryan, Warm Springs, Va. Dec. 18: No. 290,392. Intended to secure greater cleanliness, and to avoid the heat of the hands in working butter or dough. The levers or



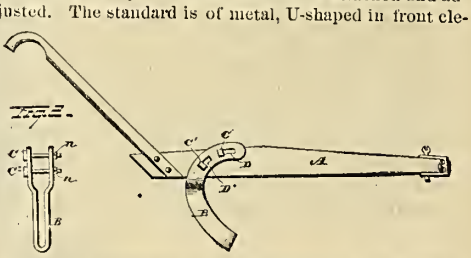
beaters are intended to be used with a chopping motion, alternately, and shifted at the same time from side to side, so as to act on all the material to be worked over. The simple construction of the dough or butter worker is sufficiently shown by the engraving given above.

Corn Planter.—R. M. Clark, McPherson, Kansas. Nov. 27; No. 289,222. Mr. Clark's aim has been to improve the general details of the construction of corn



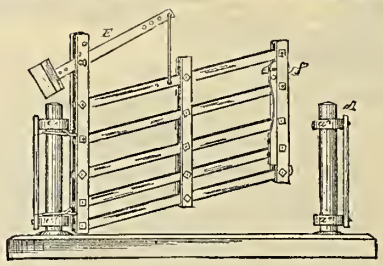
planters, and the combination of the parts, so as to produce a simple, easily operated, durable and not expensive machine. The figure shows the general character of the machine; an extended description of all the working parts would be necessary to give an idea of the improvements claimed.

Plow.—W. W. Speer, Pittsburgh, Pa. Dec. 25; No. 290,714. The plow beam is provided with two holes for the bolts, *c*, *c*, by which the standard is attached and adjusted. The standard is of metal, U-shaped in front cle-



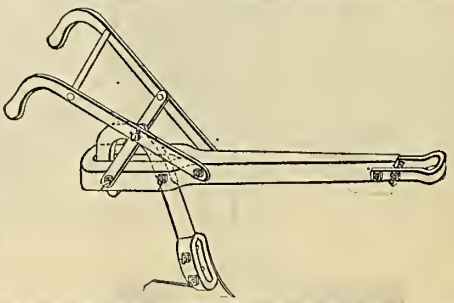
vation, and arc-shaped in side elevation. It is bent at the foot to any shape required for attaching the point. The arms of the standard embrace the beam and are attached as shown. The only patentable novelty lies in the use of two curved slots, by means of which the standard can be easily adjusted without removing the bolts, and firmly locked against strains without bracing.

Farm Gate.—H. J. Elliott, North Manchester, Ind. Dec. 18; No. 290,554. Mr. Elliott's object is to provide a cheap, simple and durable gate, which may be raised to avoid snow or ice, and to prevent dragging



on the ground, and to provide it with an improved latch, calculated to keep animals from opening the gate. The means employed, as shown in the engraving, are obviously simple, and apparently efficient and durable. The gate locks top and bottom, the latch, *f*, and an extension of the lower bar engaging slots in the collars marked *a*. The weighted arm *e*, helps to lift the gate.

Plow.—G. N. Dexter, Jr., Madison, Georgia. Dec. 25; No. 290,669. The engraving shows the plow as seen from the front and furrow side, the mould-board being removed. The improvement claimed lies in the form of



the standard. It has a cutting edge below the beam, and passes up through a slot in the beam, to which it is pivoted; then curves backward into a bow-brace, the rear end being secured to the beam by an adjustable bolt. This construction gives a light, strong plow of few parts.

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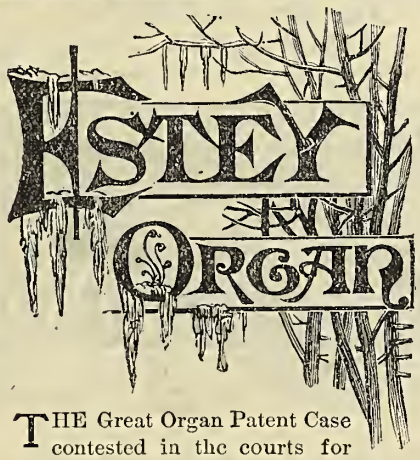
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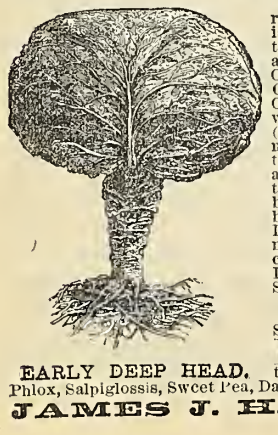
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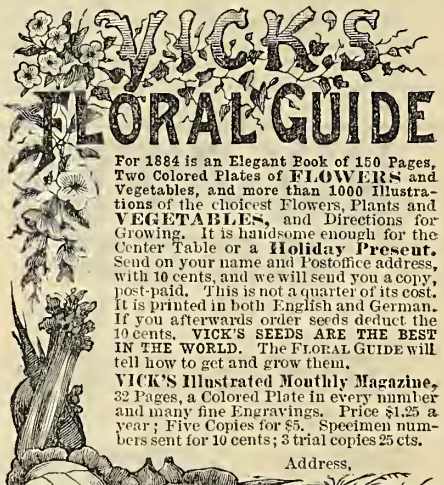
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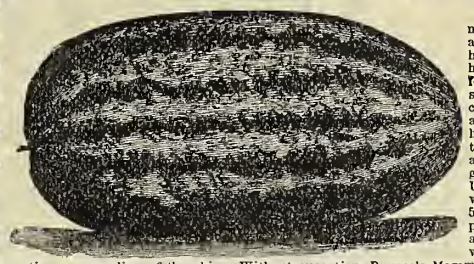
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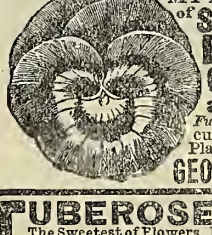
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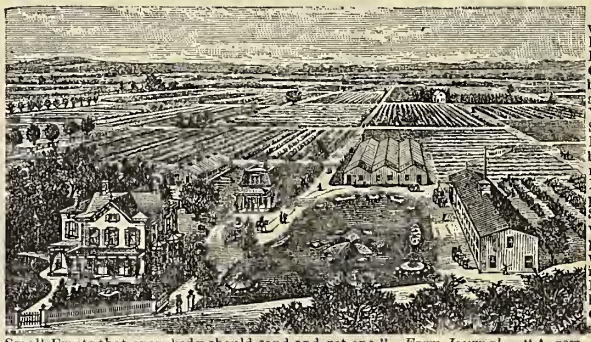
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160 MARYLAND FARMS, in Tracts from 30 to 300 acres. Near railroad and navigable salt water (with all its luxuries) in Talbot Co., Md. Climate mild and healthy. Titles good. New Pamphlet and Map, showing *location,* free. Address C. E. SHANAHAN, Atty, Easton, Md.

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Monmouth Co., N. J. Cost $60,000; sell for $30,000. Also, 50 acres fruit and improvements, $6,000. 100 acres four miles west Long Branch, $11,000. 150 acres, good improvements, near Freehold, N. J., $12,000. 107 acres adjoining, $12,000. 37 acres, improvements, near Shrewsbury, $6,000. Handsome residence and 145 acres, Manalapan, N. J., cost $40,000; sell for $20,000. 131 acres, Orange Co., N. Y., $8,500. 52 acre farm near Geneva, N. Y. 53 acres, Morris Co., N. J., $3,500. Large list of places bought under foreclosure, N. Y. and N. J. Seashore property. WM. H. SICKELS & SON, 234 Broadway, N. Y., or Red Bank, N. J.



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The most Profitable and agreeable of any occupation.

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☞ Refer to this advertisement.

CALIFORNIA. Full description by counties; 200-page pamphlet and map; price 50 cents, postage paid. McAFEE BROTHERS, Land Agents, 234 Montgomery St., San Francisco, Cal.

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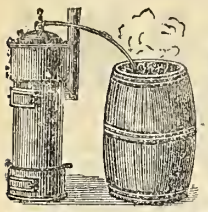
CHEAP I have several choice pieces of land lying in COLFAX COUNTY, between RICHLAND and SHELL CREEK, **located near the Line of the Union Pacific Railroad.** These lands were selected many years since from a large area, as being amongst the **Very Choicest in NEBRASKA.** I want to dispose of these lands immediately, in whole or part, and all persons who are coming to NEBRASKA to live, **should immediately address me, or come directly to my Office in Columbus.**

Government and Railroad lands in this vicinity were long ago settled. Some of these lands are only 3 and 4 miles from BENTON, Neb., on the Union Pacific Railroad, a village with an Elevator. COLUMBUS and SCHUYLER, only 7 miles away, are large and prosperous places. For information regarding these and other NEBRASKA Lands, address **LANDS**

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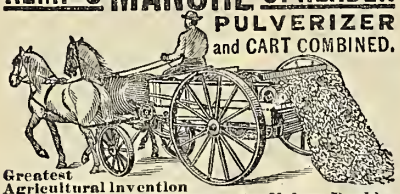
For Cooking Feed, Heating Water, &c.

Send for new descriptive circular, and mention this paper.

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Greatest Agricultural invention of the Age! Saves 90 per cent. of labor, Doubles the value of the Manure. Spreads evenly all kinds of manure, broadcast or in drill, in one-tenth time required by hand. Illustrated Catalogues free.
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Having received all the Guano Shipped to this Country **Direct from the Deposits** under new **Government Contract,** we offer to the trade,

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HURTADO & CO.,

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Worth Knowing.



Farmers will be glad to learn, a Fertilizer composed of Blood, Bone and Animal Matter, having all the ingredients requisite for the soil and to insure a good crop, can be purchased for **Twenty-five Dollars** per ton. Griffing's Metropolitan Fertilizer is the article. Address, H. B. GRIFFING, 70 Cortlandt St., New York.

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FERTILIZERS.

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416 1-2 bushels good potatoes raised on one-half acre in 1883 by Alfred Rose, Penn Yan, N. Y., with SARDY'S PHOSPHO-PERUVIAN GUANO, adapted to all crops.

Standard Guaranteed. Prices Reasonable.

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PRICES REDUCED. STANDARD MAINTAINED.

The Massachusetts Fertilizer Inspector's Valuation of STOCKBRIDGE MANURES for the past seven years Average $4.45 per Bag.

The Average Price for 1884 will be $4.50 per bag, or $5 a ton less than last year.

In buying a fertilizer, its quality and by whom manufactured should be considered along with the price per ton. A ton of good English hay is considered by most farmers cheaper at $20 than a ton of bog meadow hay at $10; and for the same reason the Stockbridge Manures, which are made largely from chemicals, and are very concentrated, are cheaper at the prices asked than many fertilizers at half the price. They have stood the test of the field and State Inspectors for nearly ten years, and have been found the most *reliable* and *richest* fertilizers offered in the market. The fact that they have been well made in the past should be a sufficient guaranty of their strength and purity in the future; but, notwithstanding this, we are still under bonds to Prof. STOCKBRIDGE to maintain their standard. Send for pamphlet (mailed free), to

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BROWN CHEMICAL CO. 16 Light St. Baltimore, Md.

EVERYTHING IN THE FERTILIZER LINE SOLD AT CLOSEST PRICES.



HOMESTEAD

SUPERPHOSPHATE,

A PURE BONE BLACK

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GOOD FOR ALL CROPS.

Price $40 per ton. Sample bbl. of 200 lbs. sent on receipt of $4.

Pamphlet containing full information sent FREE on application.

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☞ **Good Agents Wanted in every Town.**

HIGH CLASS **COMPLETE MANURES** OF FULL STRENGTH.

Very Dry Mechanical Condition, Fixed Percentages. Prepared and Guaranteed by the



CLARK'S COVE GUANO CO. PAID UP CAPITAL, $250,000.00. The integrity of this Corporation is pledged to the continuous manufacture of the highest class of RELIABLE, SOLUBLE and EFFECTIVE Fertilizers. The "plant" possesses the most advantageous seaboard position, combines every recent improvement in its complete machinery, its acid chambers, laboratory, and transporation facilities, all for securing the highest value at the lowest prices. It employs only the most experienced managers. Its productions have been tested during the past two years in 13 States with increasing satisfaction. RELIABLE AND RESPONSIBLE LOCAL DEALERS WANTED, in unoccupied territory. The RIGHT PARTIES can secure excellent opportunities in connection with regular business. TIDE WATER DISTRIBUTING WAREHOUSES adjoining R. R. termini to secure Rapid shipments and prompt deliveries, are located at convenient points. ☞Send for recent publications free of postage.

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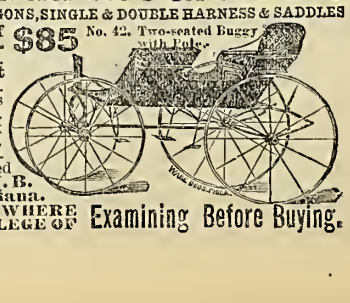
Makers of all styles of CARRIAGES, BUGGIES, SPRING WAGONS, SINGLE & DOUBLE HARNESS & SADDLES

No. 1. Team Harness **$25**



We employ no agents, and if what you order is not **satisfactory,** *we pay all expenses.* No. 42 Buggy (see cut) is just the same as others sell at $130. Top Buggies at **$90,** fine as usually sold for $125 to $140. Our Harness are all **No. 1 Oak Leather.** Single, **$8.50** to **$20.** Everything fully **warranted.** Before buying, send for our Illustrated 80-page Catalogue **free.** Address **W. B. PRATT, Sec'y, Elkhart, Indiana.**

No. 42. Two-seated Buggy **$85**



We Retail at Wholesale Prices. ☞SHIP ANYWHERE WITH PRIVILEGE OF Examining Before Buying.



An Unequal Fight.

Whoever engages in a contest with Uncle Sam is sure to come out second best, in the long run. Some parties concerned in lotteries in New Orleans, recently brought a suit against the Postmaster in that city. Finding that this official would not deliver their letters, they had them directed to the care of a Bank. The suit was brought to compel the delivery of all letters addressed to the Bank, without regard to whom that institution might transfer them. In the trial, some technical point was decided in favor of the lottery people. Forthwith it was telegraphed from one end of the country to the other, that Uncle Sam had been beaten in his own court. It is the worst victory the lottery chaps ever gained, as it only serves to indicate the weak points in the present law governing the use of the mails by lottery and other swindlers, and to show where amendment is needed. If they think that Uncle Sam will give up, just because a few skirmishers have been driven in, they do not know the old gentleman as represented by "Congress Assembled." The present Postmaster-General is known to be very much in earnest in excluding frauds from the mails, especially the lotteries, and will rigidly enforce whatever laws Congress may pass. The Senate Committee on "Post Offices and Post-Roads" are reported to be in favor of laws for restricting the use of the mails, much more stringent than those at present in force, and it is likely that lottery dealers will find more obstacles than ever. It is said that a law will be reported to exclude from the mails, not only the letters, etc., of lottery men, but to prevent the delivery of all newspapers containing advertisements of lotteries! That would be a severe blow, but when men undertake to fight Uncle Sam, they must expect to take as well as give hard knocks.

A Publisher Turns Banker.

A paper in Cincinnati proposes to set aside one-half its current receipts from subscriptions as a "Subscribers Loan Fund." As often as five thousand dollars accumulates it will be divided in loans of one hundred and five hundred dollars, among "selected subscribers," who by signing a note and paying four per cent. interest yearly in advance, can keep the amount as a perpetual loan. It is not stated how the subscribers who are to receive the loans are to be "selected," but it is consoling to be told "no subscriber is obliged to accept a loan."

After the Royal New Brunswick.

Those persecuted lottery people who fled from the tyranny of the laws of the United States, and left the genial climate of Kentucky and exiled themselves to bleak New Brunswick, are likely to fare no better with the British Lion than they did with the American Eagle. A correspondent informs us that a bill is to be introduced in the Dominion Parliament to enable the Post-office authorities to take possession of all correspondence addressed or mailed to or from the Royal New Brunswick Lottery office at St. Stephen, or any similar concern." Alas, the tyranny of these "effete monarchies."

A Galvanic Girdle.

Electricity, in its various forms, including galvanism, magnetism, etc., is so little understood that when great curative powers are claimed for various belts, garments, insoles and other appliances, including so-called "batteries," to be worn next to the skin, many are ready to believe them. As a rule these appliances make a great show of metals, but they are only for show; so far as we have seen them they can produce no current of electricity, being mere "closed circuits." The latest article of this kind is not a belt, but a "girdle," which is offered as "a positive and unfailing cure" for numerous diseases. This girdle, which is claimed to be "one of the greatest inventions of the present marvellous age," is thus described by a subscriber in Ohio, who says: "It is a cheap cloth strap, two and a half feet long and an inch and a quarter wide, with ten copper and zinc washers, the size of a cent, attached: a mere toy concern, which could be manufactured for from three to five cents, and postage on the same is two cents."—The venders of the girdle propose to send it on trial, on the receipt of forty-six cents postage, provided those who receive it will recommend it to their friends and neighbors.

Came to Grief at Last.

Several months ago the country was flooded with the circulars of Flemming & Merriam, of Chicago, who professed to have great facilities for speculating in grain and provisions, and asked for investments. We at the time advised our readers to let them alone. We did this on general principles, as their offers promised altogether too much. On January 14th last the members of this firm were convicted in the United States District Court of carrying on an extensive grain swindle, and each was sentenced to pay a fine of five hundred dollars and to twelve months' imprisonment in the county jail.

An Indignant Parent.

Is a prominent citizen of Red Rock, N. Y., who sends us circulars, that came addressed to one of his children, only twelve years of age. He says: "They are vile things, as you will see by examination."—These circulars refer to works which are either utterly useless, or absolutely pernicious, and ought never to be published. This, and other cases that frequently come to our knowledge, show how important it is that parents should know the character of the matter sent to their children by mail. The circulars to which we refer are issued by a concern that is able to give good business references, and their advertisements, the real character of which is concealed, are admitted into respectable journals.

A Gift on Payment of Express Charges.

Not long ago a well-dressed, plausible individual called at an educational institution not far from Philadelphia, and advised the officers thereof that a benevolent old lady was desirous of making the school a present. She had numerous valuable coins, various antiquities, and interesting relics, which she wished to bestow where they would be appreciated. These articles would be sent at once upon the payment of the express charges. The officers of the school for some reason did not accept the proposition, but it was afterwards learned that other parties had advanced the "express charges" to a large amount in the aggregate, and are still waiting for the valuable gifts from the benevolent old lady. This is an old dodge revived, and in the present cases worked as well as if it were new.

"Brahmo Vau, the Hindoo Deafness Cure."

Circulars claiming that a drug with the above oriental name "relieves deafness in twenty four hours and cures in from two to five weeks," and asserting that "*it is a true specific* for deafness as *quinine is for malaria*, but many times more certain in its effects," have been sent us for our opinion. Without reference to the value of the drug itself, the assertions in these circulars are likely to lead to much disappointment. They assume that deafness is a disease, while it may result from a variety of causes, and in many cases from the destruction of a portion of the hearing apparatus, is absolutely incurable. Before treating deafness one should ascertain its cause, and if, as often happens after scarlet fever and other severe diseases, the ear-drum is obliterated, all medication will be in vain. That any drug can be a "specific" in deafness is simply absurd.

A Fruit Tree Invigorator.

A correspondent in Livingston Co., N. Y., sends us a circular headed, "A Revolution in Fruit Culture," which is to be brought about by the use of "A Fruit Tree Invigorator." The compound is to be applied by boring a hole in the trunk of the tree, filling it with the "Invigorator," and closing the hole tight with grafting wax, or a cork. It is claimed for the compound that: "It so changes the flavor of the sap in the leaves and bark, that the *aphis*, that infest the tree, are unable to subsist on the leaves, and are therefore driven off, leaving the tree unmolested to bring forth its blossom and mature its fruit." Our correspondent asks us, if this "method of applying a fertilizer to fruit trees is a new discovery."

The claim that trees can be medicated by introducing substances into their trunks, is an old one; that it ever had any useful application we doubt. If a wound is made in a tree, an effort will be made to heal it. If a foreign substance is introduced, it will in time be covered up by a growth of wood. That any useful results can follow the introduction of an "invigorator," or any other substance, into a trunk of a tree, we have no proof. It is as unnatural a method of feeding a tree, as it would be to attempt to nourish a man by the introduction of food into his leg.

The End of E. P. Tiffany & Co.

The above-named firm, in Fulton Street, New York City, had for a long time been advertising fire-arms, watches, jewelry, and various other articles, to be sold at exceedingly low prices, and orders were sent from all parts of the country by mail. The Superintendent of Police received many letters from country people, to the effect that Tiffany & Co. had swindled them out of small sums by not filling their orders, or by sending articles of little value. These complaints were so numerous that the Superintendent sent detectives to the store to make inquiry; they were informed that so many orders were received that it was impossible to fill them promptly, but that every one who had sent money would receive the articles ordered. Soon after, the Superintendent was informed that E. P. Tiffany & Co. had sold out their business to J. A. Smith, they stating that the back orders would amount to twenty-five hundred dollars, which he, Smith, assumed. An examination showed that Tiffany & Co. had received orders for about fifteen thousand dollars, had taken the money, and left the State. This caused Smith to make an assignment. The assignee says that the assets amount to between seven and eight hundred dollars, against which there is a preferred claim of six hundred dollars, and "the balance after deducting expenses, will be distributed pro rata."

According to the Superintendent nothing can be done on behalf of those who have sent money to the firm, unless they can institute a suit and obtain a warrant. Rather than do this, they had better pocket the loss.

Cautionary Signals.

Pernicious Books.

There is a whole class of literature, about which decent and educated people know nothing. These books need not be obscene (though they sometimes are), to be pernicious, but are useless, trashy stuff, that finds its readers among young boys, servants, and people ignorant enough to have dream books and such works. A chap in Brooklyn offers a book called "Gold and Silver, and How to Make It." We are told: "It is a new science, enabling every one to coin their own gold and silver." We hope its science is better than the grammar. The reader is thus advised to try it. "Give up that work which pays so little, for by this process you can coin more money in one day, than you could make in years at your work." Yet this wonderful book can be had for only ten cents, and what is more, if the purchaser is not satisfied, he can "trade back"—return the book and get his dime. Surely such trash as this should be excluded from the mails. Another, also in a neighboring city, has a long catalogue, which includes works of

CHOICE ROMANCE, FICTION AND ADVENTURE.

These, to judge from their titles, are the books which turn school boys into young ruffians and criminals. Among others are "The Peep O'Day Boys: or, Wild Life on the Mountains"; "Clerk Barton's Crime, or the Adventures of a Night," and more of like stripe. The same catalogue offers "The Book of Nature," the announcement of which states that the book "is not intended for promiscuous reading," and we might add, or for any other. "Love Making Secrets," is the title of another volume in this set of miserable trash.

Grass for a Name.—S. Liken, Liberty Co., Tex., sends us a specimen, and asks if it is not Bermuda-Grass. There are only stems and leaves, and one can not be sure about a grass unless it has flowers. Still upon comparing it with specimens in our herbarium, we have little doubt that it is not Bermuda, but Buffalo-grass (*Buchloe dactyloides*). It has long, wiry, prostrate stems, a foot or more in length, which at intervals of a few inches, send up a tuft of leaves not more than six inches high. It spreads over the ground, and covers it with a dense mat of foliage, which is the principal food of the Buffalo. Mr. L. asks its agricultural value. That is a point which he can decide, as it has not to our knowledge been tested. The fact that the foliage is so short, makes it doubtful if it can be cultivated for hay. Its value for pasturage should be tested. Buffalo-grass is one of the few grasses that have staminate and pistillate flowers on different plants. In this, the two flowers are so strikingly unlike, that both forms have been described as distinct species.

"Agricultural" and Other Journals.—How they Get Subscribers.

For some time the advertisements of the "Household Magazine" have been conspicuous in the advertising pages of those papers, that would publish it. The advertisement called attention to itself by means of a heavy black border all around it, and by the use of large full-faced type within it. The object of this attractive advertisement seemed to be, not so much to set forth the merits of the magazine, as to proclaim the fact that every subscriber thereto was entitled to a "printed numbered receipt," which gave him a share in the "awarding of 'presents.'" The list of presents to be "awarded"—not prizes to be drawn—oh no!—made up a good share of the advertisement. These presents numbered one hundred thousand, and ranged in value from twenty-five cents all the way up to a "House and Lot in New York City," valued at $15,000. These presents were to be "awarded" on a given date at "our Musical Festival and Word Contest," (whatever that contest might be.)

A GAME OF CHANCE

has an attraction for many people. If an offer of low and high prizes is made, there is a vast number of persons who are ready to "try their luck," hence it is not surprising that subscriptions to the "Household Magazine" were numerous. One morning, as a collection of girls were directing the Magazine to subscribers, and other girls were directing circulars by the thousand, certain parties walked in and carried off the Magazines ready for mailing, also the circulars, ditto the books. In short, all the "goods and chattels" of the "Household Magazine" were loaded upon three large carts and conveyed to "Police Headquarters." The publisher of said Magazine was taken to court, and required to give bail for his appearance on a given day to answer to the charge of

"CONTRIVING AND MAINTAINING A LOTTERY,"

and using the U. S. mails in a manner contrary to law. It is not likely that those who fixed their hopes on being "awarded" a house and lot in New York City, valued at $15,000, will ever become holders of real estate in this way—indeed it is unlikely that subscribers to the "Household Magazine"—such as it was, will hereafter welcome its monthly visits. The publisher tried to run a "magazine" and a "lottery" at the same time, and these were too much for him. This method of running a journal or magazine with a lottery as an "annex," has met with a conspicuous failure in the case of the "Household," as that concern was supposed to be well "backed," and its lottery scheme concealed under 'presents" and "awards" as skillfully as possible. The device of a

LOTTERY TO ATTRACT SUBSCRIBERS,

is now employed by several so-called agricultural journals, widely advertised in the Western States. These journals are largely made up of sensational stories, and by "appropriating" from the agricultural journals proper, a sufficient number of articles to give their sheet a rural aspect, the energies of the concerns are devoted to advertising them. The papers far and wide contain the advertisements of these quasi-Agricultural journals. One who has seen the advertisements of the "Household Magazine," must have noticed the remarkable similarity between these, and the advertisements of these

BOGUS AGRICULTURAL JOURNALS.

There is the same heavy black border surrounding both, The same full-faced black type, and especially the same offer of "presents," to be "awarded." These journals not only advertise widely in the daily and other papers in the West, but by a provision of the postal law, are allowed to send a "Sample copy" (often the only one published,) free. Observe that the chief point in these journals

IS THE LOTTERY.

They hold out the inducement that subscribers will draw—or be "awarded" a valuable prize or "present." The general desire to take a hand in a game of chance, must bring much money to the publishers. Those who believe that any such drawings or "awards" will ever take place, will in time find out their mistake. The law, as in the case of the "Household Magazine," will prevent the drawing of any such scheme, but in most of these so-called "agricultural" journals, the object is to hold out great inducements to subscribers, get their money, and let them wait for the results of the drawing or "award," as well as for the paper itself. This is a widely extended swindle, played upon the farming community, and the Post Office Department has it in its power to put a stop to it at once.

Microscopes for the Million.—See pages 142-143 for descriptions of the new *American Agriculturist* Microscope.

$1,000 Reward.

Two years ago, the Publishers of the *American Agriculturist*, together with several other publishers, receiving and distributing their mails at our Station, were greatly annoyed by the disappearance of mail matter. The offender, a Post Office employee, is now serving a term in State Prison. During the past year there has been a re-currence of these exasperating mail robberies, and now another Post Office clerk has been arrested at this Station, and missing matter found in his possession.

A few days ago a gang of postal thieves was broken up in New England, and several of them arrested. A Connecticut dispatch states that some of the thieves have been robbing several of the mail routes and offices for years. For some time we have been endeavoring to ferret out these culprits, particularly when, on sending the paper to large clubs, one, two, three and four times over, the subscribers would fail to receive them. We now offer **a Reward of One Thousand Dollars** for the arrest, conviction, and punishment of all the parties guilty of robbing the mails of this office. We trust other Publishers who have suffered, will follow our example, until a sufficient sum has been subscribed by private parties, to make it a special object on the part of the United States Detectives, to overhaul mail robbers. Under the United States Postal Law he who steals newspapers is liable to conviction the same as if stealing letters.

Every one should be interested in this matter. Our admirable Postal Service, with its reduced rates, quick deliveries and vigilant watchfulness, is unquestionably superior to that of any other country. When we remember, however, that there are over forty thousand Post-offices and hundreds of thousands of miles of postal routes, every one can readily understand how necessary it is that all private citizens should do everything in their power to aid the authorities in arresting the offenders.

Furthermore, Congress should enact a new law this winter making the imprisonment and punishment for mail robberies still more rigorous. We ask our readers, in every State, to press this matter upon their Representatives at Washington, to the end that every postal thief, upon conviction, may receive such a summary punishment as to deter others.

What renders it all the more exasperating to the sufferer, is the fact that when an offender steals mail matter at any Post-office Station, or *en route*, he afterwards generally manages to steal the letters of complaint, so that cases are frequent where a party sends money, for example for a newspaper, and hears nothing from it. He writes and writes again and yet receives no response all this time. The thief who has taken the letter containing his money is stealing his subsequent communications. So far as the *American Agriculturist* is concerned, we believe that with the steps now in progress, neither publishers nor subscribers will experience further annoyance. The former request the latter to assist them in discovering and punishing any offender. Postmasters throughout the country, who, with scarcely an exception, are friends of the *American Agriculturist*, will gladly co-operate with our subscribers in the effort to bring such offenders to justice.

The Dutchman's Pipe, and Purging Cassia.—W. R. Gray, Jr., Fannin Co., Tex., having seen descriptions of these in November last, asks if they can be grown in Texas. The Dutchman's Pipe is hardy in New England and is kept at the leading nurseries. Purging Cassia is doubtful. The pods containing seeds are usually to be had at wholesale drug stores.

The Names of Fruits.—At the Meeting of the American Pomological Society, held at Philadelphia, last September, President Wilder in his address strongly protested against "long, unpronouncable, irrelevant, high-flown, bombastic names" for our fruits. By an unanimous vote, the Secretary was instructed to send to all kindred associations in the country a copy of the Society's rules on nomenclature, and a copy of the portion of the President's address referring to the subject. This has been done in a neat circular, which we presume those interested may procure of the Secretary, Prof. W. I. Beal, Lansing, Mich.

The Migration of Birds.—It is a matter of common observation that certain birds appear in spring and take their flight southward in the fall. There are many circumstances influencing this migration, such as temperature, storms, the appearance of insects and others, that have not been investigated. The recently-founded "American Ornithologists Union" has appointed a committee on migration, which is to collect statistics on everything that relates to the coming and going of birds. The co-operation of "every observer of nature" is asked in aid of the work. Farmers are, or ought to be, close observers, and many will gladly aid in making the needed observations. All who wish to engage in the work, the results of which will be of much interest to farmers, can be furnished with circulars giving the points to be observed and full information as to the plan, by addressing C. Hart Merriam, Locust Grove, Lewis Co., N. Y.

Provide for your Families.

We cannot too often guard our many subscribers against being persuaded to take policies in Life Insurance Companies, whose standing and character are not well established. The fate of defunct companies here in New York and other similar rotten organizations ought to be a sufficient warning. At the same time people cannot be too thoughtful about providing for the future, by insuring their lives in reliable Companies, like the Mutual Life of New York, for example. The annual statement of this Company shows that the assets now amount to $101,148,248.25. Its payments upon policies last year were nearly $14,000,000, and its income nearly $19,000,000. These figures tell the story.

FEARLESS.



VICTORIES UNEQUALED

The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers; and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free. Address

MINARD HARDER, Cobleskill, Schoharie Co., N. Y.

THE "FIRE-FLY"



"Fire-Fly" Double-Wheel Hoe

Price only $4.50.

SINGLE WHEEL-HOE, CULTIVATOR, and PLOW. This new tool is an admirable gardener's assistant, and enables one man to do the work of **five.** Remit by postal note or registered letter. 36 pp. illustrated Catalogue **free.**

S. L. ALLEN & CO. Manufacturers, **Philadelphia.**

SEED CORN **EARLY MAMMOTH DOUBLE-EARED DENT FIELD CORN.** Address G. A. DEITZ, Chambersburg, Pa.

STRAWBERRIES,

Raspberries, Blackberries, Grapes, and Currants. Newest and Best Varieties, ☞Descriptive Catalogue **free.**

JOSEPH D. FITTS, Providence, R. I.

GRAPES My Specialty. **Nursery established 27 years.** Vines of over **100** best, new and old varieties for vineyards and gardens. Stock fine. Prices low. Catalogues **free. Geo. W. Campbell,** Delaware, Ohio.

IMPROVED MAMMOTH DENT CORN

Has from twenty to forty rows to each ear and will weigh sixty pounds to the bushel. It is the largest early field corn produced in America, and will ripen in from ninety to one hundred days. Some reasons why it is the best:

1. It will produce one-third more corn per acre with same cultivation and same kind of soil.
2. It has greater depth of kernel.
3. It has more rows than any known variety.
4. It ripens earlier than any field corn in America.
5. It stands the drought better than any other.

"In depth of grain and circumference of ear it far surpasses any corn we ever saw."—*N. Y. Bee Journal.*

Price by mail, postage paid by me 2 lbs, $1.25; 4 lbs, $2; 1 peck, by express, $2.25; half bushel, $3. No corn sent C. O. D. Send in your order at once.

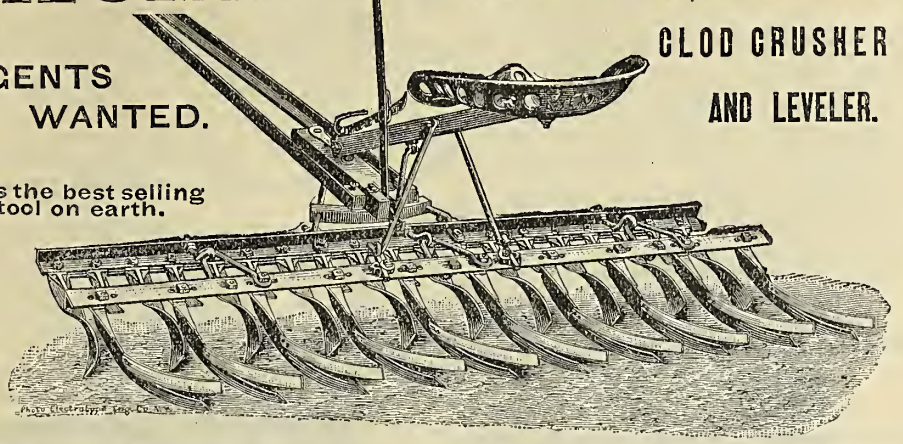
Send stamp for circular, giving full description of the corn. Address, **HENRY DENBO, Corydon, Ind.** P. O. Box 268. Name this paper.

"ACME" PULVERIZING HARROW

CLOD CRUSHER AND LEVELER.

AGENTS WANTED.

It is the best selling tool on earth.



The **'ACME"** subjects the soil to the action of a **Steel Crusher** and **Leveler**, and to the **Cutting, Lifting, Turning** process of *double gangs* of **CAST STEEL COULTERS**, the peculiar shape and arrangement of which give **immense cutting power.** Thus the three operations of **crushing** lumps, **leveling** off the ground and thoroughly **pulverizing** the soil are **performed at the same time.** The **entire absence of Spikes or Spring Teeth** avoids pulling up rubbish. It is **especially adapted** to inverted sod and hard clay, where other Harrows utterly fail; works perfectly on light soil, and is the only Harrow that **cuts over the entire surface** of the ground.

We make a Variety of Sizes working from 4 to 15 Feet Wide.

DO NOT BE DECEIVED. Don't let your dealer palm off a base imitation or some inferior tool on you under the assurance that it is something better, but SATISFY YOURSELF BY ORDERING AN "ACME" ON TRIAL. We will send the double gang Acme to any responsible farmer in the United States on trial, and if it does not suit, you may send it back, we paying return freight charges. We don't ask for pay until you have tried it on your own farm.

SEND FOR PAMPHLET CONTAINING THOUSANDS OF TESTIMONIALS FROM 46 DIFFERENT STATES AND TERRITORIES.

BRANCH OFFICE: HARRISBURG, PA. **NASH & BROTHER,** Manufactory and Principal Office: MILLINGTON, N. J.

N. B. PAMPHLET "TILLAGE IS MANURE" SENT FREE TO PARTIES WHO NAME THIS PAPER.

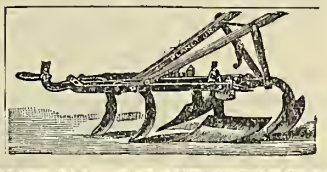


The **NEW TOOLS** we offer this season, together with recent improvements, place the **"PLANET Jr."** Farm and Garden Implements **beyond all Competition.**

S. L. ALLEN & CO.
127 & 129 Catharine St., Phila.

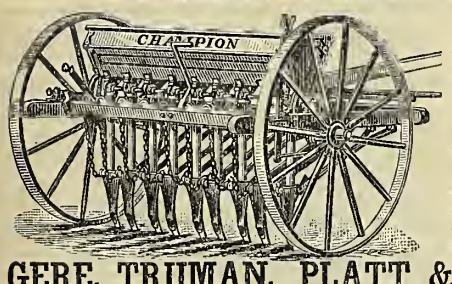
NEW CATALOGUE

☞**SEND NOW,** if you are interested in Farming, Gardening or Trucking, for our **NEW CATALOGUE,** containing **32** pages and over **40** illustrations, describing fully the **"PLANET Jr."** **Horse Hoes, Cultivators, Seed-Drills, Wheel-Hoes, Potato-Diggers, Etc. Etc.**



Champion Grain and Fertilizer Drill.

POSITIVE FORCE FEED DISTRIBUTORS.



SPECIAL DEVICE for planting corn for the crop.

FERTILIZER ATTACHMENT

Unequalled, and is warranted to distribute accurately, evenly and easily *any* commercial fertilizer—wet or dry.

Draft light and easily handled. Construction simple, Materials and workmanship the best.

We also make the WHIPPLE SPRING TOOTH SULKY AND FLOATING HARROWS, CULTIVATORS, &c.

These HARROWS are adapted for use on all kinds of soil, and are the best *pulverizers* known. No farmer can afford to be without one. Ample time given for trial before settlement. BROADCAST GRAIN SEEDERS, with SULKY HARROWS, when desired. Send for descriptive pamphlets to

GERE, TRUMAN, PLATT & CO., Owego, Tioga County, N. Y.

MATTHEWS' SEED DRILL



The Standard of America.

Admitted by leading Seedsmen and Market Gardeners everywhere to be the most perfect and reliable drill in use.

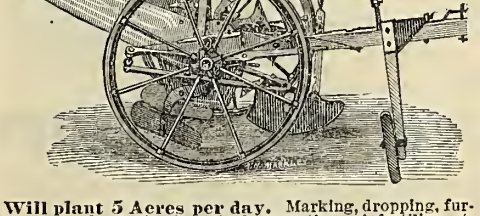
—Also—

MATTHEWS' HAND CULTIVATOR, MATTHEWS' WHEEL HOE, MATTHEWS' DRILL CULTIVATOR AND HOE COMBINED.

Comprising the best line of implements for planting and cultivating garden crops to be found in America. Send for circular showing latest improvements and latest prices. Made only by

T. B. EVERETT & CO.
(Successors to EVERETT & SMALL,) **BOSTON, Mass.**

THE ASPINWALL POTATO PLANTER.



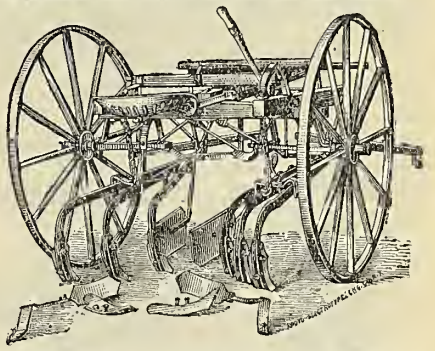
Will plant 5 Acres per day. Marking, dropping, furrowing, and covering in a single operation. A fertilizer attachment can be furnished with a capacity of 600 to 800 lbs. per acre.

B. GILL & SON,
Trenton Agricultural Works, Trenton, N. J.

HENCH'S
Riding or Walking Corn and Fallow
CULTIVATOR.

With double Row Corn Planter and Fertilizer Attachments complete in one Machine.

RECEIVED MEDAL AND HIGHEST AWARDS OF MERIT AT THE GREAT SOUTHERN EXPOSITION, LOUISVILLE, KY., AND A NUMBER OF STATE FAIRS IN 1883.



THE KING OF THE CORN-FIELD.

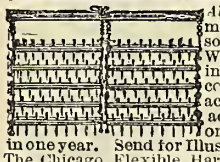
Thousands in use giving entire satisfaction. The demand already this season is three times as large as last year.

RELIABLE AGENTS wanted in all unoccupied territory. Manufactured at York, Pa., and Orrville, Ohio. Send for catalogue mailed free. Address,

HENCH & DROMGOLD,
Name this paper. **York, Pa.**

THE CHICAGO COMBINED PATENT

Flexible Harrow and Grain Cultivator.



All Teeth. Steel Best implement in use. Unequaled as a sod harrow and pulverizer. Works equally well in growing Wheat, Potatoes or young corn. Adds 5 to 10 bushels per acre to the yield. 25 to 50 acres per day cultivated by one team. Will pay for itself in one year. Send for Illustrated Price List.

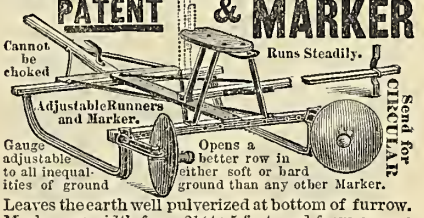
The Chicago Flexible Harrow Co., Sole Proprietors and Manufacturers, 35 to 41 Indiana St., Chicago, Ills.

FISK'S AUTOMATIC SEED PLANTER



The best improvement ever made in Hand Planters. They are warranted, and satisfaction guaranteed. Circulars and terms to Agents free. **WALLACE FISK,**
South Byron, Genesee Co., N. Y.

DARNELL'S PATENT FURROWER & MARKER



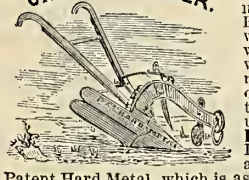
Leaves the earth well pulverized at bottom of furrow. Marks any width from 2½ to 5 feet, and from a mere mark to 6 inches deep.

"Take pleasure in recommending it. It does the business; is well made and will last for years." *J.S. Collins, Moorestown, N.J.*

"It far exceeds my expectations. If the real merits of this cheap implement were known to potato growers alone, the sales would be immense." *E.L. Coy, Pres. Wash. Co. (N.Y.) Agr. Society*

H.W. DOUGHTEN Manufact'r, **Moorestown, Burlington Co., N. J.**

ONEONTA CLIPPER.

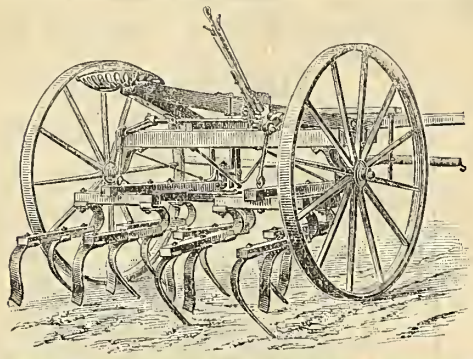


This Plow contains the most remarkable improvements ever made in Swivel Plows. It is easy to handle, with **Shifting handles,** which enables the operator to walk with both feet in the furrow. The Hook or Latch is operated by the foot, so that the Plow is turned ready for use **without taking the hands from the handles.** Light to draw, firm, strong, and durable. Constructed of Patent Hard Metal, which is as strong and will secure equal to steel. We also make it of charcoal iron, at a less price.

An Illustrated Catalogue of all our Tools and Implements sent free.

THE BELCHER & TAYLOR AGRICULTURAL TOOL CO.,
Chicopee Falls, Mass.

INCREASE THE CROP BY THOROUGHLY PULVERIZING THE SOIL.



Whipple Spring Tooth Sulky and Floating Harrows, Cultivators, &c., &c.

The teeth are arranged to cut and move the earth like so many small plows. Every inch of ground is moved and pulverized five inches deep if desired.

THE "WHIPPLE" HARROW is *strong and well made;* is adapted to smooth or rough land, and the teeth being independent, adjust themselves to rocky and uneven surfaces.

These Harrows accomplish more with the same power than any *other* Harrow known, and can be used for a greater variety of work.

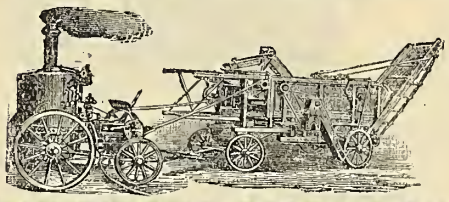
THE SULKY HARROWS can be adjusted for use as Riding or Walking Corn Cultivators, and when desired Broadcast Grain Seeders are furnished.

Ample time for trial allowed before settlement.

Send for pamphlets describing our various styles of Harrows and Cultivators; *also* the Champion Grain and Fertilizer Drill.

GERE, TRUMAN, PLATT & CO.,
Owego, Tioga County, N. Y.

The Westinghouse



THRESHING MACHINES,

Engines, Saw-Mills & Horse Powers.

Grain Threshers, unequalled in capacity for separating and cleaning.

Combined Grain and Clover Threshers, fully equal to regular grain machines on grain, and a genuine **Clover Huller** in addition.

Two Speed Traction and **Plain Engines** 6, 10, and 15 Horse Power, positively the most desirable for Lightness, Economy, Power and Safety. Boiler has horizontal tubes, and is therefore free from the objectionable features of vertical boilers.

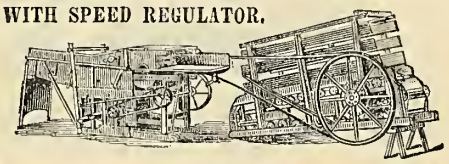
Horse Powers, both Lever and Endless Chain. All sizes. Send for catalogue. Address

THE WESTINGHOUSE CO.,
Schenectady, N. Y.

HEEBNER'S PATENT

Level Tread Horse Power

WITH SPEED REGULATOR.

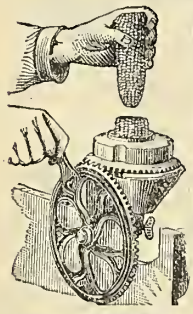


Heebner's Improved Little Giant Threshing Machine.

No other Power is as powerful and easy for the horses. The Level Lags and Speed Regulator are the most valuable improvements ever made in horse powers. See that you get Heebner's, any other with level lags will be an infringement upon our patents.

The Little Giant has more good points than any other Thresher. None can do work as fast, nor any better, and none are better made. Union Feed Cutter, Drag and Circular Saws, etc. Send for Illustrated Catalogue.

HEEBNER & SONS, Lansdale, Pa.



The

"Right Speedy"

CORN SHELLER.

Cheap, Durable and Effective; shells 12 to 14 bushels per hour.

It is the best hand Sheller made and I warrant it for 5 years,

Price **$5**, or handsomely nickel-plated, **$6**.

AGENTS WANTED.

If no agent in your vicinity, I will send Sheller express paid, on receipt of price. Send for circular.

CURTIS GODDARD,
Allianee, O.

Agricultural Implements and Machinery,

LABOR SAVING FOR FARM AND HOME.

A. B. COHU & CO.

have issued the largest and finest Catalogue of 1,000 Implements, &c., ever published. Sent post-paid to any part of the world on receipt of 25 cents.

197 WATER STREET, NEW YORK.



WANT

to send You their "FARMERS' POCKET COMPANION," Free.

DO YOU WANT

A HAND PLOW?
SULKY PLOW?
GANG PLOW?
CORN CULTIVATOR?
HARROW?

GET ONLY The BEST.

WE MAKE THEM.

Send your name and address on a postal card to

DEERE & COMPANY,
Moline, Ill.

"THE BEST IS THE CHEAPEST."

SAW MILLS **ENGINES** Threshers, Horse POWERS,

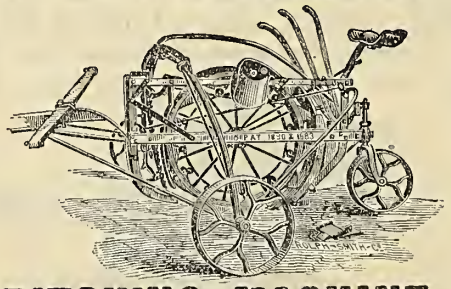
(For all sections and purposes. Write for FREE Pamphlet and Prices to THE AULTMAN & TAYLOR Co., Mansfield, Ohio.



DRAIN TILE MACHINES,

SEND FOR CIRCULAR.

By CHANDLER & TAYLOR,
Indianapolis, Ind.



DITCHING MACHINE,

FOR UNDERDRAINING.

Will do more work than 30 men with spades. Guaranteed to give satisfaction. Send for Circular.

WM. RENNIE,

SOLE MANUFACTURER, TORONTO, CANADA.

WINTER IS THE TIME

TO PUT UP YOUR TRACKS FOR

HAY CONVEYORS,

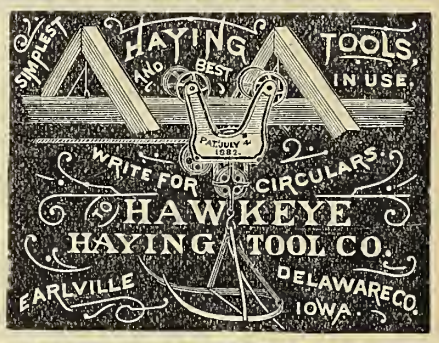
while the barns are full. You can then do the work yourself without the help of a carpenter, as you require no scaffolding. For circulars and prices of the best Hay Conveyors, for either straight or curved track, address

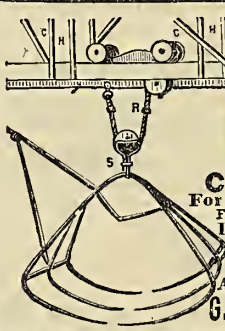
J. A. CROSS, Fultonville, N. Y.

Gardner's Railway Pitching Apparatus.



Consisting of Grappling Fork, Carrier, Pulleys, etc. This Fork, Car, etc., has been sold throughout the U. S. and Canada with the greatest success. It has won its way amid the greatest competition of Forks and Carriers, and is without doubt the best hay and grain unloader made. Every farmer should send for a circular now. E. V. R. GARDNER & Co., Westtown, Orange Co., N. Y.





GRAPPLING HAY FORK

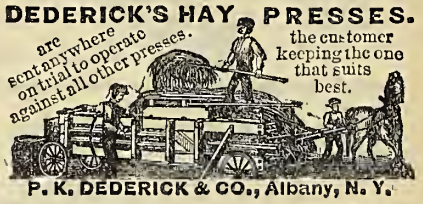
AND

CONVEYORS

For Track, Rope or Rod
For BARNS or STACKING.
BEST Combination.
Used by Thousands
Prices Reduced.
Send for Circular.
AGENTS WANTED.

G.B. WEEKS SYRACUSE New York.

DEDERICK'S HAY PRESSES.



are sent anywhere on trial to operate against all other presses. the customer keeping the one that suits best.

P. K. DEDERICK & CO., Albany, N. Y.

PEARCE'S IMPROVED

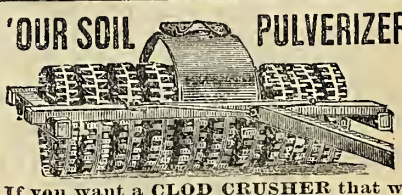
CAHOON BROADCAST SEED SOWER.



This Machine sows wheat two rods wide, so that a man walking one mile sows 4 acres, and does the work better than can be done by any other means whatever. It sows grass seed and all kinds of grain. Price $6. We have agents in all parts of the country. Send stamp for circular.

GOODELL COMPANY,
Antrim, N. H., Manuf's.

'OUR SOIL PULVERIZER.'

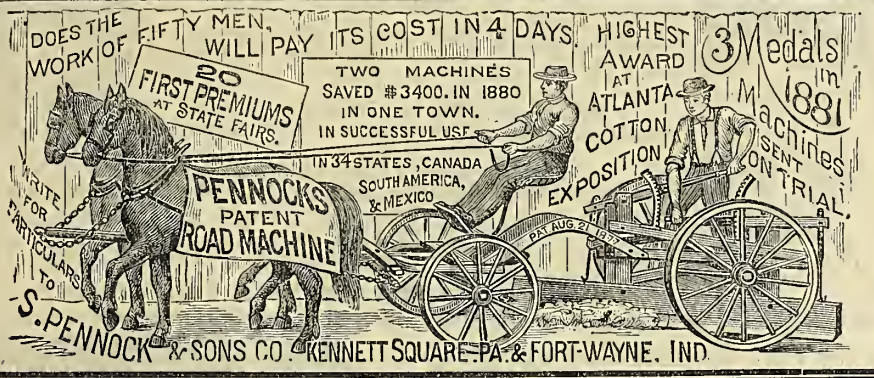


If you want a CLOD CRUSHER that will last you a lifetime, without getting out of order, and that will do BETTER WORK with ONE-HALF the labor and lighter draft than any other Implement for the purpose, send for prices and description to

H. P. DEUSCHER, Hamilton, Ohio.

POST'S EUREKA SAP SPOUTS.

See page 32, January No., 1884, Agriculturist.



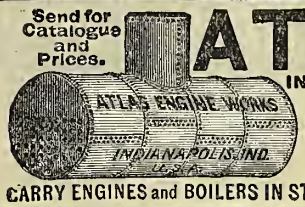
Send for Catalogue and Prices.

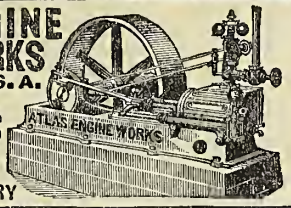
ATLAS ENGINE WORKS

INDIANAPOLIS, IND., U. S. A.

MANUFACTURERS OF

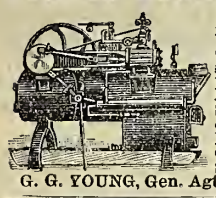
STEAM ENGINES AND BOILERS.



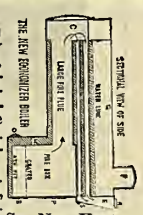


CARRY ENGINES and BOILERS IN STOCK for IMMEDIATE DELIVERY

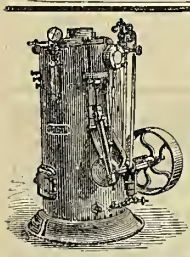
PORTER MANUF'G CO.



The New Economizer, the only Agricultural Engine with Return Flue Boiler in use. Send for circular to PORTER MFG. Co., Limited, Syracuse, N.Y.



G. G. YOUNG, Gen. Agt., 42 Cortland St., New York.



Bookwalter Engine.

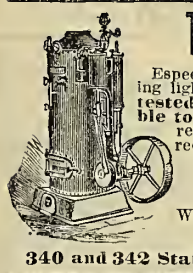
Especially adapted for Dairies, Creameries, and Farm purposes. Can be used for years without any repairs. Some 3,000 in actual use. Not one ever exploded. Can be run by any one of ordinary intelligence. Every Engine complete, ready to use as soon as received. No Engine built so good and so low in price.

3	Horse-Power	$240.00
4½	" "	280.00
6½	" "	355.00
8½	" "	440.00

Illustrated Catalogues Free.

JAMES LEFFEL & CO.,

110 Liberty St., New York City, or Springfield, Ohio.



TRIUMPH ENGINE.

Especially adapted for purposes requiring light power. Wrought iron boilers—**tested, inspected and insured payable to the purchaser.** Guaranteed as represented. Ready to run as soon as received.

3	Horse Power,	$250.00.
5	" "	300.00.
7	" "	375.00.
10	" "	500.00.

Write to

Paige Mf'g Co.,

340 and 342 State Street, PAINESVILLE, O.

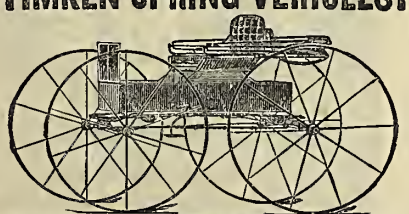


STOP THIEF!

1 oz. to 10 lbs. sold at Hardware or by Express on receipt of $1.50. Address

Jones of Binghamton, Binghamton, N. Y.

TIMKEN SPRING VEHICLES!



Easiest riding Vehicle made. Rides as easy with one person as with two. **The Springs lengthen and shorten according to the weight they carry.** Equally well adapted to rough country roads and fine drives of cities. Manufactured and sold by all the leading Carriage Builders and Dealers.

HENRY TIMKEN,

Patentee, ST. LOUIS, MO.

Used exclusively by CHICAGO, ILL. ABBOTT BUGGY CO

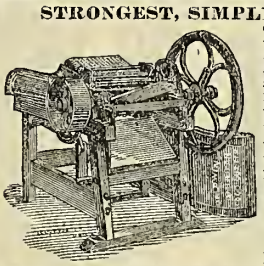
ACME PULVERIZING HARROW,

CLOD CRUSHER AND LEVELER.

SEE ADVERTISEMENT ON PAGE 133.

BALDWIN'S IMPROVED ENSILAGE & FEED CUTTER.

STRONGEST, SIMPLEST AND BEST.

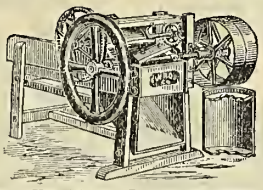


Thoroughly tested during last four seasons, for Cutting Ensilage, and proved a perfect success. The leading Cutter for last sixteen years for cutting all kinds of dry and green fodder. Power cutters have Baldwin's Safety Fly Wheel; the only reliable wheel made. 13 Sizes for hand and power. Send for illustrated circulars containing description, prices and testimonials.

C. Pierpont & Co.,

Mfrs., New Haven, Conn.

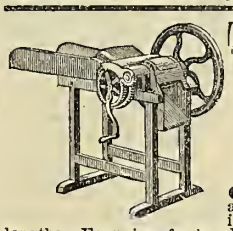
THE ROSS CUTTERS.



SEND FOR OUR NEW ILLUSTRATED CIRCULAR OF ENSILAGE AND FODDER CUTTERS.

E. W. ROSS & CO., Fulton, Oswego Co., N. Y.

☞ Mention *American Agriculturist.*



THE TIGER,

Best of All

FEED CUTTERS.

Cuts faster, runs lighter, and is the **best made** Cutter in the market. Cuts various lengths. Four sizes for hand and four for power. **$18 to $85.** Responsible agents wanted. Manufactured only by

CARR & HOBSON (Limited),

47 Cliff Street, New York.

18,000 Carpenters and Farmers

now use our **Late Make Filers** to file saws, so they will cut **faster** than ever. **Teeth** all of **equal size,** Pitch and Bevel. Single one sent free on receipt of $2.50, where no Dealer keeps them for sale. A discount to Dealers or others wishing to sell. For Illustrated Circulars, *Testimonials* from persons who use them, etc., address

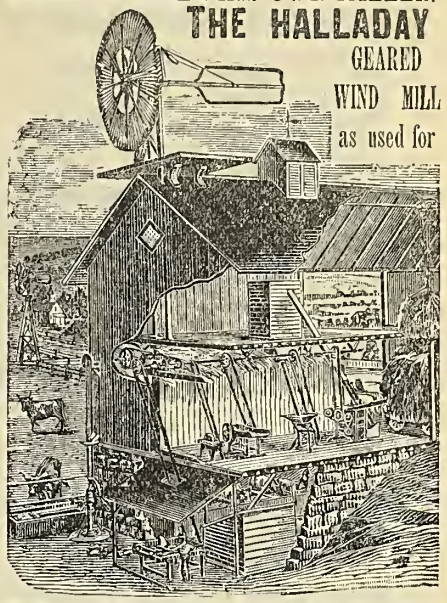
E. ROTH & BRO., New Oxford, Penna.

Post-Office Money Orders make payable at Gettysburg, Pa.

EVERY FARMER HIS OWN MILLER.

THE HALLADAY GEARED WIND MILL

as used for



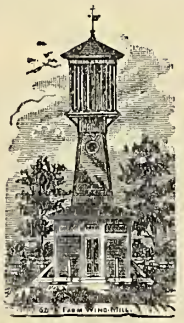
Shelling and Elevating Corn, Grinding Feed, Cutting Hay, Sawing Wood, Pumping Water, etc.

Send for Catalogue illustrating the above machinery; also Pumping Wind Mills, Pumps, Tanks, Noyes Haying Tools, Horse Powers, Jacks, &c.

Reliable Agents wanted in all unassigned counties.

U. S. WIND ENGINE & PUMP CO.,

BATAVIA, Kane Co., ILL.



THE HERCULES WIND ENGINE.

The best **self-regulating** Wind Mill known. Agents wanted. Send stamp for new catalogue. Address,

HERCULES Wind Engine Co.,

Worcester, Mass.

Mention this paper.

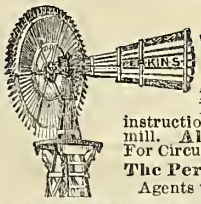
Old Reliable Stover Improved.



We are the Sole Owners and Manufacturers of the Stover Pumping Windmills for pumping water for Railroads, Villages, Suburban houses, Lawns, Dairies, Brick Yards, Draining, Irrigating, etc., as well as Geared Windmills of all sizes, for running Grinders, Shellers, Saws, etc. Also Feed Grinders operated by Pumping Windmills. Corn and Cob Double-faced Grinders with Sweep, Corn Shellers, Wood Saws, Corn Cultivators, and Implements generally.

FREEPORT MACHINE CO.,

FREEPORT, ILL., U. S. A.



THE PERKINS' Wind Mill

is the Strongest and Best Self-Regulating Wind Mill made. Full instructions for erecting sent with the first mill. **All Wind Mills warranted.** For Circulars and Prices address

The Perkins' Wind Mill & Ax Co.,

Agents wanted. Mishawaka, Ind.

7,000 CHALLENGE WIND MILLS.



IN USE IN EVERY State and Territory of the U. S. It is a sectional wheel, has been made by us for 15 years, and has never blown down without tower breaking, a record no other mill can show. **MILLS SENT ON 30 DAYS TEST TRIAL. BEST FEED MILLS, CORN SHELLERS, ETC. GOOD AGENTS WANTED** in all unassigned territory. Catalogues free. **CHALLENGE WIND MILL AND FEED MILL CO.**, Batavia, Kane Co., Ill.

WELL BORING,

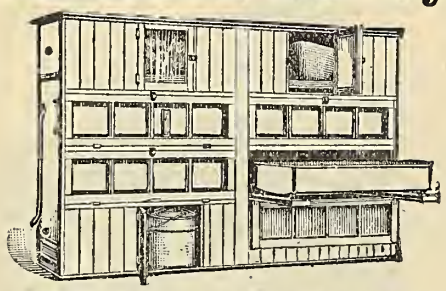
ARTESIAN WELL DRILLING & MINERAL PROSPECTING MACHINERY

and how to use, is fully illustrated, explained and highly recommended in "American Agriculturist," Nov. No., 1879, page 465. Send for it. Portable, low priced, worked by man, horse or steam power. Needed by farmers in every county. Good business for Winter or Summer and very profitable. Makes wells in earth or rock anywhere. We want the names of men that need wells. Send stamp for illustrated price list and terms to Agents.

Pierce Well Excavator Co. Long Island City, New York.

THE FERGUSON

Bureau Creamery.



Shallow Setting PERFECTED.

Why is it Best?

SIX SOLID REASONS.

1. Because it separates the cream most completely, and therefore makes **the most butter.**

2. Because it keeps the milk at a uniform temperature of 60° and so secures the cream in the best possible condition, and therefore makes **the best butter.**

3. Because it favors the greatest development of color and flavor, and the best texture, or 'grain,' and therefore is the best for making **fancy butter.**

4. Because it keeps the milk in a pure, cool, dry air, and fully ripens the cream before it is removed from the milk, and therefore makes **the best keeping butter.**

5. Because it uses the least Ice—only about one-fourth as much as the deep setting system.

6. Because it requires the least labor. In no other way can the milk of a dairy be so easily cared for.

☞ Hundreds of the best dairymen have discarded the deep setting systems, and now use the Bureau.

It is used and endorsed by such men as—

Prof. L. B. ARNOLD, Pres. Amer. Dairy Association.
RICHARD GOODMAN, Jr., Lenox, Massachusetts.
A. W. CHEEVER, Agricul. Editor N. E. *Farmer*.
J. MILTON MACKIE, Pres. Amer. Jersey Cattle Club.
HENRY STEWART, Dairy Editor.
EDWARD BURNETT, Deerfoot Farm, Southboro, Mass.

Don't buy any Pans, Cans or Creamers,

or send your milk to the factory, until you have sent for our large illustrated Circulars and price lists.

THE FERGUSON M'F'G CO.,
BURLINGTON, VERMONT.

SHIPPERS OF MILK, ATTENTION!

WARREN MILK BOTTLES.



PATENTED MARCH 23d, 1880.

Adapted for the delivery of Milk in all Cities and Towns.

A Long Needed Want at last Supplied.

DESCRIPTIVE CIRCULARS ON APPLICATION.

Warren Glass Works Co.
A. A.
72 Murray St.,
NEW YORK.

ARM & HAMMER BRAND

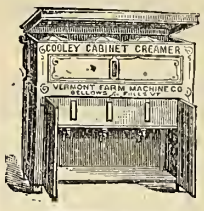
CHURCH & CO'S SODA & SALERATUS.

TO FARMERS.—It is important that the **Soda** or **Saleratus** they use should be *white* and *pure*, in common with all similar substances used for food.

In making bread with yeast, it is well to use about half a teaspoonful of the **"Arm and Hammer" Brand Soda** or **Saleratus** at the same time, and thus make the bread rise better and prevent it becoming sour by correcting the natural acidity of the yeast.

DAIRYMEN and FARMERS should use only the **"Arm and Hammer"** brand for cleaning and keeping milk pans sweet and clean.

To insure obtaining only the **"Arm and Hammer"** *brand Soda or Saleratus, buy it in* "POUND *or* HALF POUND PACKAGES," *which bear our name and trademark, as inferior goods are sometimes substituted for the* **"Arm and Hammer"** *brand when bought in bulk.*



CABINET STYLE.

THE COOLEY CREAMERS.

FIVE GOLD MEDALS and ELEVEN SILVER MEDALS awarded for Superiority of Process and Product.

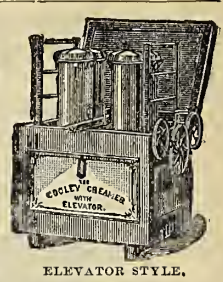
AMONG THEM

THE GOLD MEDAL at **PALACE OF INDUSTRY, Paris, France, 1879,** | THE GOLD MEDAL at **PALACE OF INDUSTRY, Paris, France, 1882,**

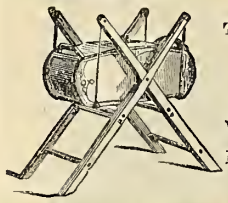
after weeks of competitive tests with the leading Milk Setting Apparatus of the WORLD.

OVER 20,000 IN DAILY USE.

They Raise the most Cream and make the best Butter.



ELEVATOR STYLE.



THE DAVIS SWING CHURN.

THE MOST POPULAR CHURN ON THE MARKET.

Because it makes the most butter from a given amount of cream. Because no other Churn works so easy. Because it makes the best grained butter. Because it is the easiest cleaned.

Also the **EUREKA BUTTER WORKER,** the **NESBITT BUTTER PRINTER,** and a full line of Butter Making Utensils for Dairies and Factories. Send for Illustrated Circulars.

VERMONT FARM MACHINE CO., Bellows Falls, Vt.



Pat. Channel Can Creamery.

Used in Dairies now all over the U. S. Makes more Butter than any other process. Our Testimonials in circulars are vouchers. We furnish **Churns, Butter Workers, etc.** First order at wholesale where we have no agents—Agents wanted. Send for Circulars.

WM. E. LINCOLN CO., Warren, Mass.

Moseley's Cabinet Creamery

Creamery & Refrigerator COMBINED.



For **families, dairies, factories, the cream-gathering system; for hotels, etc.** Sizes for One Cow to Fifty. Used with or without Ice.

STODDARD CHURN.

BEST ON THE MARKET. **No floats or dashers inside.**

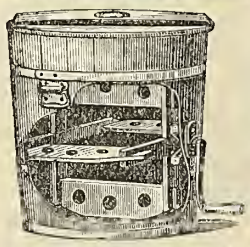


Nine Sizes for dairy and factory **with or without pulley.**

One at wholesale where we have no Agent.

Dog Powers, Butter Boxes, Prints, Etc.

Moseley & Stoddard M'f'g Co.
Poultney, Vt.



STAR CHURNS.

Five Sizes.

Made of White Cedar and bound with Galvanized Iron Hoops.

Send for descriptive circular and prices.

CLEMENT & DUNBAR,
Philadelphia, Pa.

HOUSEKEEPERS, ATTENTION!

UNION Sewing Machine

IT IS SUPERIOR TO ALL. IT IS EQUALLED NOWHERE.

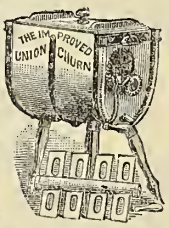


Is the Best and Handsomest Made.

Agents Wanted.

The Improved **UNION CHURN.**

Has Stood the Test Ten Years.



It is Warranted to be all right. You run no risk in buying one.

Send for Circulars with full details of either or both these articles to the

UNION MANUF'G CO., Toledo, Ohio.



This Instrument

Containing 22 NOTES (6 MORE than is contained in any other like instrument) is unequalled for durability, power, and sweetness of tone. Larger sizes for House, Lodge and Chapel, contain 32 notes.

THE AUTOPHONE,

For Grown People and children, the finest and cheapest AUTOMATIC MUSICAL INSTRUMENT ever offered.

Send for Circular and Catalogue of Music.

THE AUTOPHONE CO., Ithaca, N. Y.

Canvassers Wanted.

GET THE BEST.

A NEW BUTTER-WORKER

TRY ONE

After three years of practical trial and public endorsement, we offer to Dairymen and to the Trade, our HAND BUTTER-WORKER, operating on the principle of *direct and powerful pressure*, instead of rolling, grinding, or sliding upon the butter.

We claim that it is the *only* Butter-Worker which will *certainly, quickly* and *easily*, take out *all* the buttermilk, and which *does not* and *cannot* injure the grain of the butter. *It works in the salt as easily and as well.*

THE GENUINE

BLANCHARD CHURN

GET THE BEST

Five Sizes made for Family Dairies. Eight sizes for Factory use. We now make both the Round and Square form of Factory Churns. All our goods are of perfect stock and the best workmanship. They are strong, simple, efficient, convenient and durable. The continue to be

THE STANDARD CHURNS OF THE COUNTRY.

Inquire of the nearest Dealer in such goods for a "BLANCHARD BUTTER-WORKER," or a *genuine* "BLANCHARD CHURN," and if he has none on hand, send postal for Prices and Descriptive Circular to

THE INVENTORS AND SOLE MANUFACTURERS,
PORTER BLANCHARD'S SONS, CONCORD, N. H.
Established, 1818.

APPARATUS & SUPPLIES FOR CHEESE FACTORIES!

CREAMERIES AND DAIRIES.

☞ **Manufacturing OUTFITS a Specialty.** Send for Illustrated Circular of Improved Apparatus for making **CHEESE AND BUTTER.**

JOHN S. CARTER MANUFACTURER AND DEALER. Syracuse, N.Y.

Illus. Catalogue sent FREE.



A.H.REID
1635 Barker St.
Phila., Pa.

BUTTER SHIPPING BOXES, Etc.



Butter PRINTERS,

Try our way of **Printing and Shipping Butter,** and get **BEST prices.**

ACME PULVERIZING HARROW.

CLOD CRUSHER AND LEVELER.

SEE ADVERTISEMENT ON PAGE 133.

1884 PRICES

GUNS Bargains.



SEND US your address on a postal card, and we will furnish you, **free,** our large illus. **10c.** catalogue. *Hundreds of fine engravings.* Everything in the gun line, watches, cutlery, etc., at **bargain prices.** Address **J. A. ROSS & CO.,** successors to G. W. TUBNER & ROSS, 16 & 17 Dock Sq., Boston, Mass.

Ensilage.—An Important Discovery.

Dr. M. Miles, Professor of Agriculture at the Massachusetts Agricultural College, made during the past summer at the Massachusetts Experimental Station at Amherst some investigations in ensilage. It is well known that ensilage ferments, acetic acid is produced, and it often has a strong odor of vinegar, or the change goes still further and alcohol is formed. Fermentation in ensilage is due to the presence of *bacteria*, minute fungi, the growth of which induces fermentation in a similar way to that caused by the yeast fungus in other cases. To prevent fermentation the bacteria and their germs must be destroyed, which can be most readily done by heat. Prof. Miles' experiments show that when exposed to a temperature of from one hundred and fifteen to one hundred and twenty degrees the bacteria are destroyed. In filling a silo in the ordinary manner, the temperature rises thirty degrees or more, and by properly managing the filling, the heat may be increased sufficiently to destroy the ferment. The details of the filling have yet to be determined by other experiments. This discovery promises to be of great value to all who make use of ensilage.

Catalogues Acknowledged.

Dealers, more than ever before, add new departments to their business and make it difficult to classify their catalogues.. Thus seedsmen include in their lists the ordinary bedding plants and small fruits, while nurserymen generally supply florists stock. We, as heretofore, enter the catalogues under what appears to be the leading department, and note the others:

SEEDSMEN AND FLORISTS.

ALNEER BROTHERS, Rockford, Ill.—One of the firm was a member of the well-known house of J. B. Root & Co., dissolved since the death of Mr. Root. A full illustrated list.

BENSON, MAULE & Co., 129-131 Front St., Philadelphia, Pa.—A very full list, with many novelties in seeds. Also, sheep, swine and poultry in great variety.

J. BOLGIANO & SON, Baltimore, Md.—A number of novelties and specialties in vegetables.

WALDO F. BROWN, Oxford, Ohio, offers a number of specialties, including useful varieties of gourds.

W. ATLEE BURPEE & Co.—A very full list, including pigs and poultry of the best breeds. A separate account of the award of premium for Welcome oats and offer of prizes for the current year.

WM. H. CARSON & Co., No. 114 Chambers St., New York City.—A handsomely illustrated Catalogue, including many seeds now offered for the first time.

EEWARD P. CLOUD, Kennet Square, Pa., offer several novelties in farm seeds; has implements and live stock.

COLE & BROTHERS, Pella, Iowa.—Very full, especially in farm seeds.

A. D. COWAN & Co., No. 114 Chambers St., New York City.—A large number of novelties in vegetable and flower seeds. Also, plants, implements, etc.

WILLIAM EVANS, Montreal, Canada.—Vegetable, flower and farm seeds; a large variety of implements.

D. F. FERRY & Co., Detroit, Mich.—Besides a very full list in all departments, including plants, a supplement for specialties.

AARON LOW, Essex, Mass.—A very full list. Seed potatoes a specialty, of which a great variety is offered.

HENRY A. DREER, No. 714 Chestnut St., Philadelphia, Pa. As usual this catalogue offers plants as well as seeds. A supplement of twenty-four pages is added to describe novelties.

L. W. GOODELL, Amherst, Mass.—Flower seeds and select list of vegetables, a colored plate of New Diamond Pansies.

J. J. H. GREGORY, Marblehead, Mass.—This list is, as usual, unique in form and contents and always interesting.

JOSEPH HARRIS, Rochester, N. Y.—Seeds for the farm, vegetable and flower garden. A choice selection.

R. D. HAWLEY, Hartford, Conn.—Vegetable and farm seeds, with numerous farm and garden implements.

PETER HENDERSON & Co., Nos. 35-37 Courtlandt St., New York, entitle their catalogue "Everything for the Garden." It is wonderfully full, with many novelties.

JOHNSON & STOKES, No. 1,114 Market St., Philadelphia. Well illustrated with a number of novelties.

LANDRETH & SONS, Philadelphia, Pa., celebrate the hundredth year of their house by issuing a catalogue that is a marvel of beauty and a wonder in its contents.

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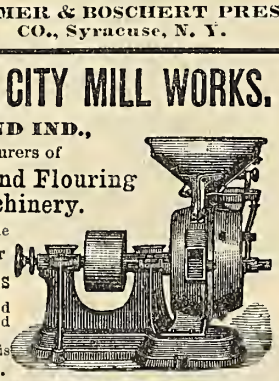
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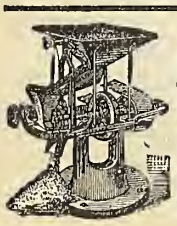


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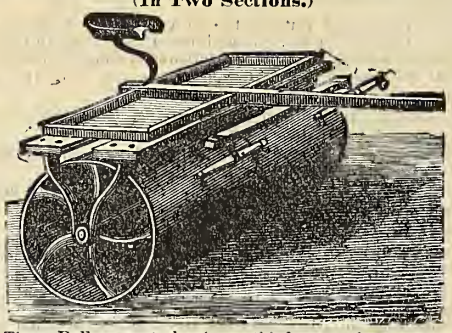
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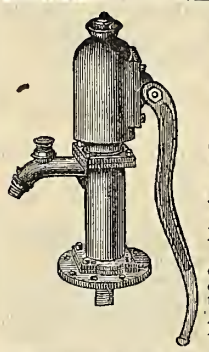
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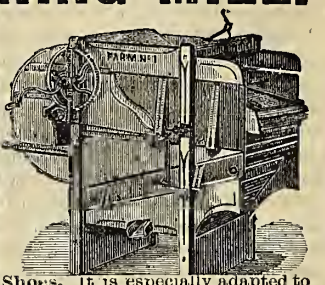
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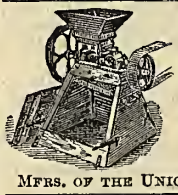
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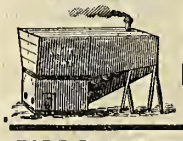
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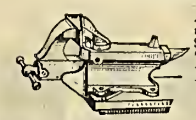
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ORANGE JUDD CO., 751 Broadway, N.Y.

AN

UNSEEN WORLD

Revealed to Every Eye.

The unaided eye sees but *very little* of the universe. The telescope brings to our knowledge vast numbers of worlds the existence of which we

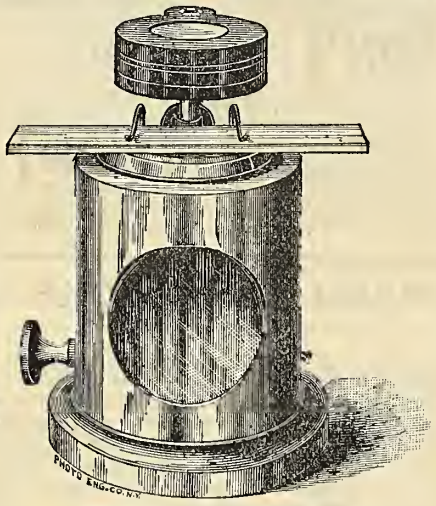


Fig. 1.—MICROSCOPE CLOSED.

should have had no conception, without its aid. There is also all around us a world invisible to our natural eyes; and only by using the Microscope can we see and study its wonderful inhabitants. By this we find that there are myriads of things hidden from us by their minuteness—indeed thousands, if not millions, for every one that is visible.

We find that there are animal forms that move, feed, multiply, and apparently enjoy themselves, yet so small that millions of them gathered in a space as large as a silver dollar, would each have abundant room to sport and play! [See next page.]

Not only are there minute forms of animal life, but there are innumerable plants so small that no one is aware of their existence until it is revealed by the Microscope. These Little Things are not only interesting, but to *see* and know them is of

Great Importance to Us.

The greatest harm to our Crops, our Animals, our Fruits, our Flowers, even to our Bodies, is found to be due to *living* things, both vegetable and animal, so small that they have until recently escaped our knowledge.

Do You Want to See some of these small but wonderfully interesting things? We are now prepared to help every reader of the *American Agriculturist* to some conception of them, to help look a little way down into this unseen world.

The American Agriculturist Compound Microscope.

This was specially devised for the readers of the *American Agriculturist*; it is partially described on the following page. This instrument will enable one to examine, and to see very distinctly and clearly, a vast multitude of interesting things, each one a thousand times smaller than the tiniest thing that you can see with the unassisted eyes. This instrument, as you will learn from the description, is accessible to all our readers, either without cost, or at a cost far below anything like it was ever before offered—at a cost so small that if you knew how valuable it is, you would spare no sacrifice or effort to get it immediately.

Not a **Family**, not a **Teacher**, not a **School**, in all the land, should be without one. It would be of more interest to all, and to most people more useful, than anything else they could buy for many times the cost.

Creeping and Walking.

The adage has it, "we must creep before we can walk." That is not quite true in *this* case. While every one may begin with a Simple Microscope and go on to a Compound one, the Compound Microscope we have above referred to, is so constructed, and its use so fully explained in the descriptions and directions accompanying each instrument, that the merest novice, or even a child, can very quickly learn to use it with unbounded interest and satisfaction. But while we advise all to look into the value and importance of the Compound Microscope and examine its great capabilities, we have

A NEW AND

Most Interesting Announcement

TO EVERY READER

OF THE

American Agriculturist,

AND TO THEIR FRIENDS.

The Publishers have the great pleasure of announcing that they have within the past month succeeded in having made expressly for them a **new** and **most valuable Simple Microscope,** which is pronounced by experts, by the highest scientific authorities in such matters, to be the most complete, most perfect, and most useful instrument of the kind ever devised in this or any other country, that can be produced and supplied for anything like the low cost of this one.

And Still Better.

By special arrangement to have them manufactured on a large scale, with automatic machinery, (which not only secures entire *uniformity* in quality and a perfection far beyond former methods, but re-

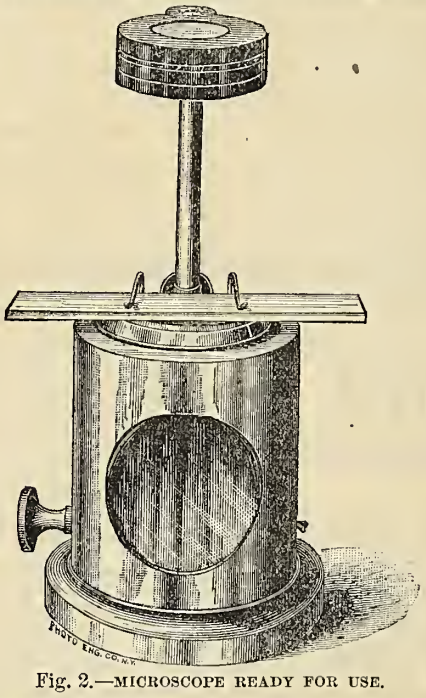


Fig. 2.—MICROSCOPE READY FOR USE.

duces the cost to a small fraction of the former hand manufacture), these most useful instruments are now brought within the easy reach of every man, woman, and child. Our arrangements will enable us to speedily provide

ONE FOR

Every Subscriber

TO THE

American Agriculturist.

Safely packed for carriage and delivered free to any part of the United States or Territories. [See "How Supplied" first column next page.]

DESCRIPTION.—The *American Agriculturist* **NEW Simple Microscope** is shown in fig. 1, ready for packing in its box, while fig. 2 shows the lenses raised and ready for use. The stand

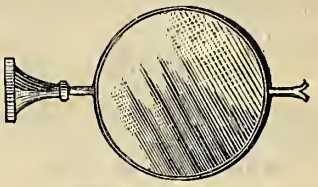


Fig. 3.—MIRROR.

or body is of nickel-plated metal (resembling silver and untarnishable). It stands upon a broad bottom. An opening on one side admits light within to a

Circular Mirror, fig. 3; this concentrates and throws the light up to the object examined. This Mirror is so suspended that it can be turned to any angle required by the incoming light from a window, or from a lamp at night. This *Mirror* is of great importance, and is one of the very decided improvements upon the former Simple Microscope supplied seven years ago to our readers. By its aid the needed extra illumination of the object to be examined is provided. At the top of the stand is a **Glass Stage** set in a frame like a watch crystal.—Two nickel-plated **Spring Clips,** fig. 4, over this stage, hold firmly upon it the slides that carry the objects to be examined.—The Microscope is also accompanied by **two Glass Plates** or slides, and also, to be placed between them, a waterproof **Cell** for holding seeds, insects, and other small objects and fluids. **The Lenses,** figs. 5 and 6, are of course the most important thing in any microscope. In this instrument there are **THREE** of them, of different powers, and so arranged that one can be used where low power is required; a second one for a little higher power, and a third for a still higher power. Then again any two can be combined for other powers, and all three when the highest power of the instrument is desired. Thus *seven* different powers can be quickly provided, ranging from a magnifying power of seven diameters up to twenty-five or more. (It will be understood that if a lens magnifies twenty diameters, that is twenty times in one direction, it magnifies equally in all directions or twenty times twenty areas, or four hundred times (less what is taken off from the corners, in cutting a circle out of a square). A circular area of twenty-five diameters is nearly five hundred times that of one diameter, and this (500) is the magnifying power of these three lenses used together.) They are of highest quality glass, and ground to perfection, of course by automatic machinery so that there can be no variation of curvature.—They are as free as possible in an instrument of this kind from the imperfections of ordinary lenses, in fact nearly achromatic, a point not even attempted in the great mass of cheap microscopes sold at moderate prices.—A **Diaphragm** (shown at the lower left-hand of fig. 5, and in fig. 6) is provided to cut off outside light in examining minute objects, and concentrate the vision upon a single point. This turns in or out as needed.—All the Lenses are attached (as in fig. 6) to a Sliding Rod **Standard,** fig. 7, which is moved up and down in a tube by the thumb-piece, making it thus easy to adjust the lenses to any desired distance from the object, and to suit them to different eyes.



Fig. 4.—SPRING CLIPS.

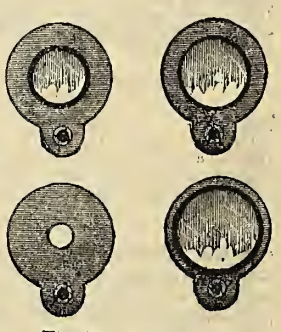


Fig. 5.—LENSES AND DIAPHRAGM, SEPARATE.

The whole apparatus is packed in a neat **Box,**

adapted to hold it for carrying safely by any conveyance, and for keeping it in when not in use.

We can conceive of no more convenient arrangement of all the parts for practical use, than are combined in this remarkable Single Microscope.

Usefulness of the Microscope for Farmers, and Others.

A Microscope is valuable to **Farmers**—*to detect the cause of diseases of plants and animals, whether due to insects, such as scab, etc., or to fungi, as mildew, etc.; to detect adulteration in seeds, and their de-*

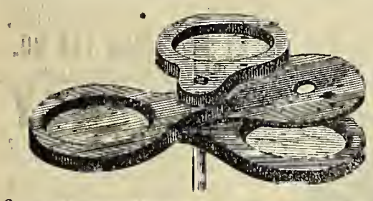


Fig. 6.—SINGLE MICROSCOPE. LENSES ON STANDARD.

gree of goodness or badness, the proportion of fertile and infertile seed; also adulteration in fertilizers, ground bone, etc.; to examine wounds and bruises, extract slivers from the hands, etc., etc. The Microscope is equally useful to **Gardeners, Florists, Fruit-growers,** *etc., for most of the above purposes, and for many others too numerous to specify.*

The Microscope is useful to **All Classes,** *to detect adulterations in food, as in coffee, tea, spices, sugar, and to examine the texture and defects of many articles.*

As a source of **Instructive Amusement,** *the Microscope is exceedingly valuable to Children, to Young people, and to Grown people.* The beautiful forms and structure of the most minute flowers, of insects, etc., are wonderful when examined by even a Microscope of very moderate power. The dust on the wing of a butterfly or moth becomes, in the Compound Microscope most beautiful feathers or other forms. Mold on cheese or a shoe becomes to the eye a forest-like growth. The structure of the soil under our feet, its curious mixture of crystals and broken rocks, are interesting to examine. A drop of spirits of camphor put on the glass is seen shooting into wonderful crystals, as the liquid evaporates. *Hundreds of other things may be examined, furnishing varied instruction, and most elevated entertainment. As an interesting Toy, nothing else equal to a fairly good Microscope can be given to Children.*

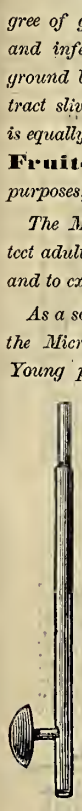


Fig. 7. ROD.

How Supplied.

This Simple Microscope is more valuable in the quality of its lenses, its arrangements, etc., than any thing we have ever seen offered for several dollars. Probably its equal can nowhere else be had under four or five dollars. But it will be supplied by us and sent *delivered free* to any part of the United States and Territories for two dollars, and *delivered free* to any actual subscriber to the *American Agriculturist* for 1884, for **One Dollar and twenty-five cents.**

FURTHER.—We will present one, delivered free, and send the *American Agriculturist* to a new subscriber, post-paid, during all of 1884, for two dollars.

FURTHER.—We will present this Microscope to any present subscriber, and **deliver it free** to him, who will send us two new subscribers to the *American Agriculturist* for one year, at one dollar and fifty cents each.

Take Notice ALL Subscribers.

Any person already a subscriber to the *American Agriculturist*, can have one of the above Microscopes delivered free to him for one dollar and twenty-five cents.

A Remarkable Instrument—Of Great Value to All;

Brought within the reach of almost Everybody—Costs scarcely one-fifth of former less Valuable Instruments—Reveals all around us a World of Objects far more numerous and even more interesting and beautiful than all we can see with our natural eyes—Useful in Many Ways—a Perpetual source of Pleasure and Instruction to YOUNG and OLD—It should be at once placed in every Public and Private SCHOOL not already supplied, and in Every FAMILY—Valuable to Physicians, etc., etc.

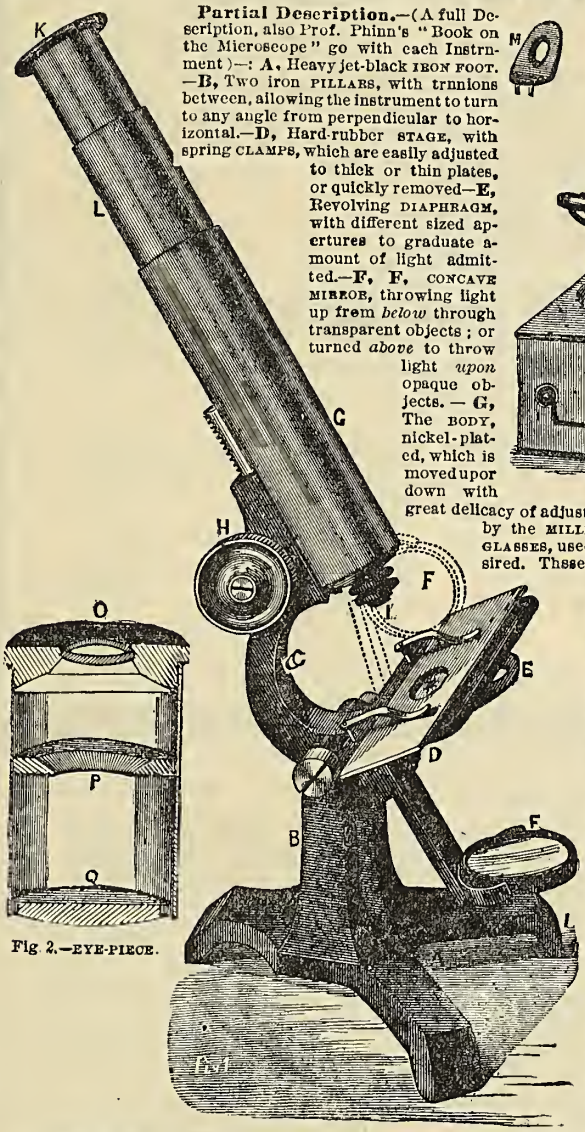


Fig. 2.—EYE-PIECE.

Partial Description.—(A full Description, also Prof. Phinn's "Book on the Microscope" go with each Instrument):—**A**, Heavy jet-black IRON FOOT.—**B**, Two iron PILLARS, with trunnions between, allowing the instrument to turn to any angle from perpendicular to horizontal.—**D**, Hard-rubber STAGE, with spring CLAMPS, which are easily adjusted to thick or thin plates, or quickly removed—**E**, Revolving DIAPHRAGM, with different sized apertures to graduate amount of light admitted.—**F, F**, CONCAVE MIRROR, throwing light up from *below* through transparent objects; or turned *above* to throw light *upon* opaque objects.—**G**, The BODY, nickel-plated, which is moved upon or down with great delicacy of adjustment of focus, by the RACK and PINION, moved by the MILLED HEADS (one seen at **H**).—**I**, Two OBJECT GLASSES, used separately or together, according to power desired. These, the most important part of any Microscope, are of very superior quality.—**L**, is a nickel-plated DRAW-TUBE, 3¼ inches long, adding materially to the length of the body when higher magnifying power is desired.—**K** (shown in section at the left, in fig. 2), is a very complete EYE-PIECE, having all the parts of the most costly Microscope, viz., FIELD glass, **Q**; DIAPHRAGM of black metal, **P**; EYE-GLASS, **O**.—All parts of the eye-piece are mounted in frames with removable screws.—Fig. 3.—The **Camera Lucida** is a new and most valuable appliance for throwing the image of any object, magnified to any desired size, upon paper in a way to be easily sketched with a pencil by any person, or by a child, if old enough to trace lines and marks with a pencil.—☞ *With this, one can make a complete picture, 3 or 4 inches across, of the foot of a fly, the parts of a plant, and of many other things so small as to be almost invisible to the unaided eye.*

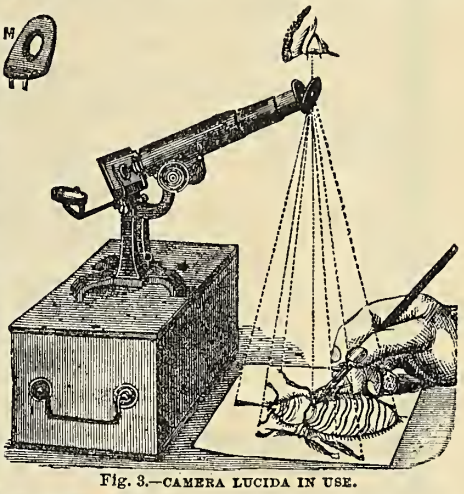


Fig. 3.—CAMERA LUCIDA IN USE.

—The New American Agriculturist Compound MICROSCOPE.

With a Compound Microscope we have actually seen and *measured* living, moving animals, so small that 10,000,000,000 would only fill a box *one inch* in diameter—that is, seven times as many of them as there are of people in the world!—We have a bit of swine's flesh barely visible to the unaided eye, which, under the Microscope, is plainly seen to contain seven separate nests of Trichinæ that look like so many monstrous serpents.—The unseen world all around us is full of such wonders. The Microscope opens up this world to our eyes! The greater the power of the Instrument, the greater is the extent of the world thus revealed.

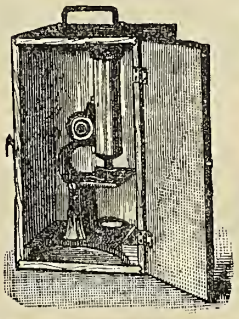


Fig. 4. Microscope condensed in Walnut Case (8½x4½x3¾ inches), in which it is firmly held for carrying or keeping.

For the special benefit of the readers of the *American Agriculturist*, the Editors, after years of thought on this subject, and many experiments, succeeded in having an excellent Compound Microscope of quite large power, constructed by *automatic machinery*, which makes the parts far more perfectly, and at far less cost than the former slow hand-work.—It has also combined with it a new, simple **Camera Lucida,** which enables even a child to sketch upon paper large permanent pictures of objects so small as not to be visible to the naked eye—such as the dust on a moth or butterfly shows like feathers or scales, 3 or 4 inches across, and in infinite variety of form, shape, and coloring; the foot of a fly, flea, etc.; the tiny and nearly or quite imperceptible insects that destroy our plants and clothing, or produce diseases in our plants and animals; the pollen of flowers, etc.—It enables farmers, gardeners, and fruit growers to examine and recognize insects, fowl seeds, fungi, etc., etc. It is useful to all physicians. Every family will find it intensely interesting, and no **School,** Public or Private, should be without one. (See offer below.)

Price $15 (or $10 to *American Agriculturist* subscribers, for whom it was specially designed).—☞ This price includes the *Camera Lucida*, the Walnut Case (fig. 4) packed in an exterior box, so that it will go safely anywhere by express; also a free copy of Prof. Phinn's Book on the Microscope, some glasses, etc.—Carriage paid by recipients.

The whole will also be **Presented** to any one furnishing **10** subscriptions to the *American Agriculturist* at $1.50 a year each. ☞ The Teachers or Pupils in *every* school not already supplied should at once make up a subscription club, and secure this Microscope for the benefit of all. Plenty of people would take the paper for their own use, when by so doing they would help so valuable an enterprise.

N. B.—*Any one desiring the above Microscope for immediate use, or as a present, can forward $10 and receive it, and deduct the $10 from the subscription money if he afterwards makes up a Premium Club for it, as above offered.*

STATEMENT

OF

THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK.

F. S. WINSTON, President.

For the year ending December 31st, 1883.

ASSETS.....$101,148,248.25.

Annuity Account.

	No.	Ann. Pay'ts.		No.	Ann. Pay'ts.
Annuities in force, Jan. 1st, 1883.	55	$19,200 91	Annuities in force, Jan. 1st, 1884.	61	$23,134 31
Premium Annuities.....		3,712 44	Premium Annuities.....		3,674 96
Annuities Issued.....	7	4,433 40	Annuities Terminated.....	1	537 48
	62	$27,346 75		62	$27,346 75

Insurance Account.

	No.	Amount.		No.	Amount.
Policies in force, Jan. 1st, 1883.	106,214	$329,554,174	Policies in force, Jan. 1st, 1884.	110,990	$342,946,032
Risks Assumed.....	11,531	37,810,597	Risks Terminated.....	6,755	24,418,739
	117,745	$367,364,771		117,745	$367,364,771

Dr. Revenue Account. *Cr.*

To Balance from last account.....	$92,782,986 08	By paid Death Claims.....	$5,005,795 00
" Premiums received.....	13,457,928 44	" " Matured Endowments.....	2,866,261 73
" Interest and Rents,.....	5,042,964 45	Total claims— $7,962,056 73	
		" " Annuities.....	27,661 38
		" " Dividends.....	3,138,391 69
		" " Surrendered Policies and Additions.....	2,831,150 71
		Total paid Policy-holders— $13,959,360 51	
		" " Commissions, (payment of current and extinguishment of future,).....	886,126 90
		" " Premium charged off on Securities Purchased.....	405,472 22
		" " Taxes and Assessments.....	226,057 69
		" " Expenses.....	834,752 79
		" " Balance to New Account....	94,972,108 86
	$111,283,878 97		$111,283,878 97

Dr. Balance Sheet. *Cr.*

To Reserve at four per cent.....	$95,571,877 00	By Bonds Secured by Mortgages on Real Estate.....	$46,303,472 34
" Claims by death not yet due.....	908,635 00	" United States and other Bonds...	25,279,040 00
" Premiums paid in advance.....	22,794 35	" Loans on Collaterals.....	15,037,910 00
" Agents' Balances.....	8,479 56	" Real Estate.....	8,633,971 89
" Surplus and Contingent Guarantee Fund.....	4,636,462 34	" Cash in Banks and Trust Companies at interest.....	3,403,249 63
		" Interest accrued.....	1,310,588 23
		" Premiums deferred, quarterly and semi-annual.....	1,039,229 68
		" Premiums in transit, principally for December.....	140,786 48
	$101,148,248 25		$101,148,248 25

NOTE.—If the New York Standard of four and a half per cent Interest be used, the Surplus is over $12,000,000.

From the Surplus, as appears in the Balance Sheet, a dividend will be apportioned to each participating Policy which shall be in force at its anniversary in 1884.

THE PREMIUM RATES CHARGED FOR INSURANCE IN THIS COMPANY WERE REDUCED IN 1879 ABOUT 15 PER CENT ON ORDINARY LIFE POLICIES.

ASSETS.....$101,148,248 25

NEW YORK, January 18, 1884.

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Applications of Insurance may be made at the office of the Company, or to any of its Agents.

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GOOD NEWS TO LADIES!

Now's your time to get up Orders for our CELEBRATED TEAS and COFFEES, and secure a **beautiful MOSS ROSE or GOLD-BAND CHINA TEA-SET** (44 pieces), our own importation. One of these beautiful china sets given away to the party sending an order for $25. This is the greatest inducement ever offered. Send in your orders and **enjoy** a cup of GOOD TEA or COFFEE, and at the same time procure a HANDSOME CHINA TEA-SET. No humbug. Good Teas, 30c., 35., and 40c. per lb. Excellent Teas, 50c. and 60c., and very best from 65c. to 90c. We are the oldest and largest Tea Company in the business. The reputation of our house requires no comment. We have just imported some very fine WHITE GRANITE DINNER SETS, (115 pieces), which we give away with Tea and Coffee orders of $40 and upwards. For full particulars,

Address THE GREAT AMERICAN TEA CO.

P. O. Box 289. 31 and 33 Vesey St., New York.



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Ladies canvassing for Tea will do well to send for our Premium List. We have premiums for orders from $5 to $60, including Gold Band Tea Sets, Waltham Watches, etc. We send thousands of these orders every year, and have yet to hear of any dissatisfaction from those receiving them. If any lady reader of this paper wishes for a beautiful Gold Band Tea Set, they will find it to their advantage to send us a postal for further information.

ATLANTIC TEA COMPANY,
FITCHBURG, MASS.



"DRINK FAIR, BETSEY, WOTEVER YOU DO."
Martin Chuzzlewit.

TEA CLUB ORDERS.

We have made a specialty for six years of *giving away* as Premiums, to those who get up clubs for our goods, *Dinner and Tea Sets, Gold Band Sets, Silverware, etc.* Teas of all kinds, from 30 to 75 cents per pound. We do a very large Tea and Coffee business, besides sending out from 60 to 90 **CLUB ORDERS** each day. **SILVER-PLATED CASTERS** as Premiums with **$5, $7** and **$10** orders. **WHITE TEA SETS** with **$10** orders. **DECORATED TEA SETS** with **$15, GOLD BAND** or **MOSS ROSE SETS of 44 pieces,** or **DINNER SETS of 106 pieces** with **$20** orders, and a **Host** of other Premiums. Send us postal and mention this paper, and we will send you full **Price and Premium List.** Freight charges average 75 cents per 100 lbs. to points West.

GREAT LONDON TEA CO.,
801 Washington Street, Boston, Mass.

American Agriculturist

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Ten or more Subscribers, post-free, Only $1 each.

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DAVID W. JUDD, *President.*

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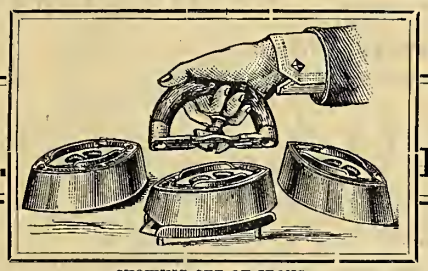


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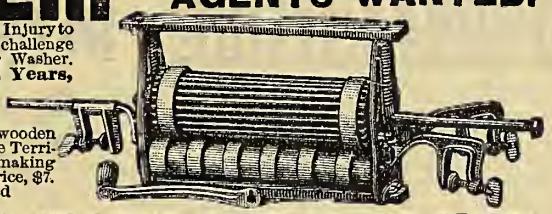
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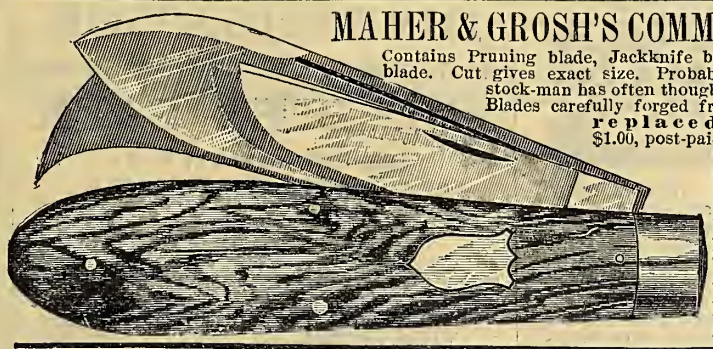
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H. L. Goodshain,	Pawlet, "	500.00	Struck by lightning; killed.
Albert Kessler,	Cape Vincent, N. Y.,	1000.00	Tree fell on back, killed.
W. A. Towner,	Brewsters, "	70.00	Hand crushed by ice-box.
D. W. Willgus,	Suspension B'dge "	160.00	Injured by fall.
Wm. Blackman,	Meshoppen, Pa.,	90.00	Thumb bitten by hog.
J. W. Owen,	Canton, "	53.57	Struck shoulder on log.
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Ambrose Lyall,	Visalia, "	135.00	Arm and ribs hurt by fall.
Thomas Dixon,	Enreka, Nev.,	107.14	Thrown from horse, sprained wrist.
F. M. McPheters,	Elko, "	120.00	Broke finger.
Henry C. Wilson,	Red Bluff, Cal.,	200.00	Cut wrist with knife.
Warren Ware,	Pittston, Me.,	95.71	Struck foot with axe.
Aaron Knowlton,	Essex, Mass.,	80.00	Ankle dislocated by fall.
Milton Fox,	Lowell, "	50.00	Knee kicked by cow.
W. A. Maynard,	Rutland, "	100.00	Leg cut by axe.
H. S. Chapman,	Sullivan, N. Y.,	82.86	Thrown from sleigh.
Geo. A. Steadman,	Lenox, "	112.86	Stick fell on arm.
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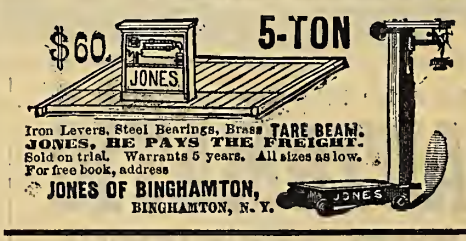
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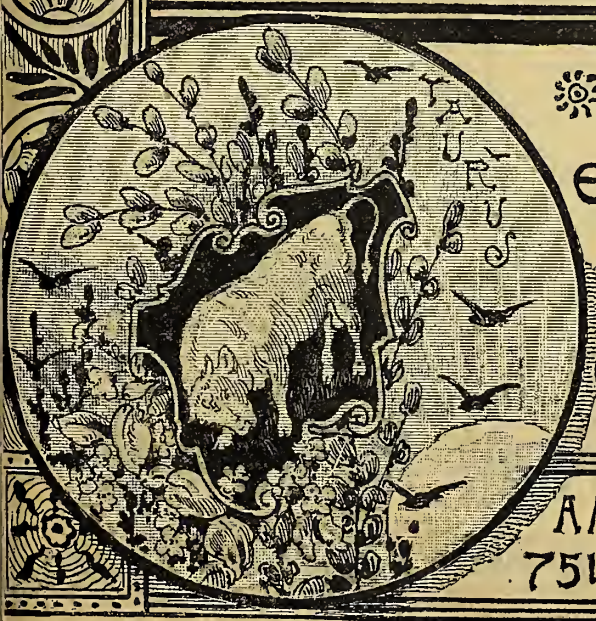
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VOLUME XLIII

ESTABLISHED 1842

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(Continued from last month.)

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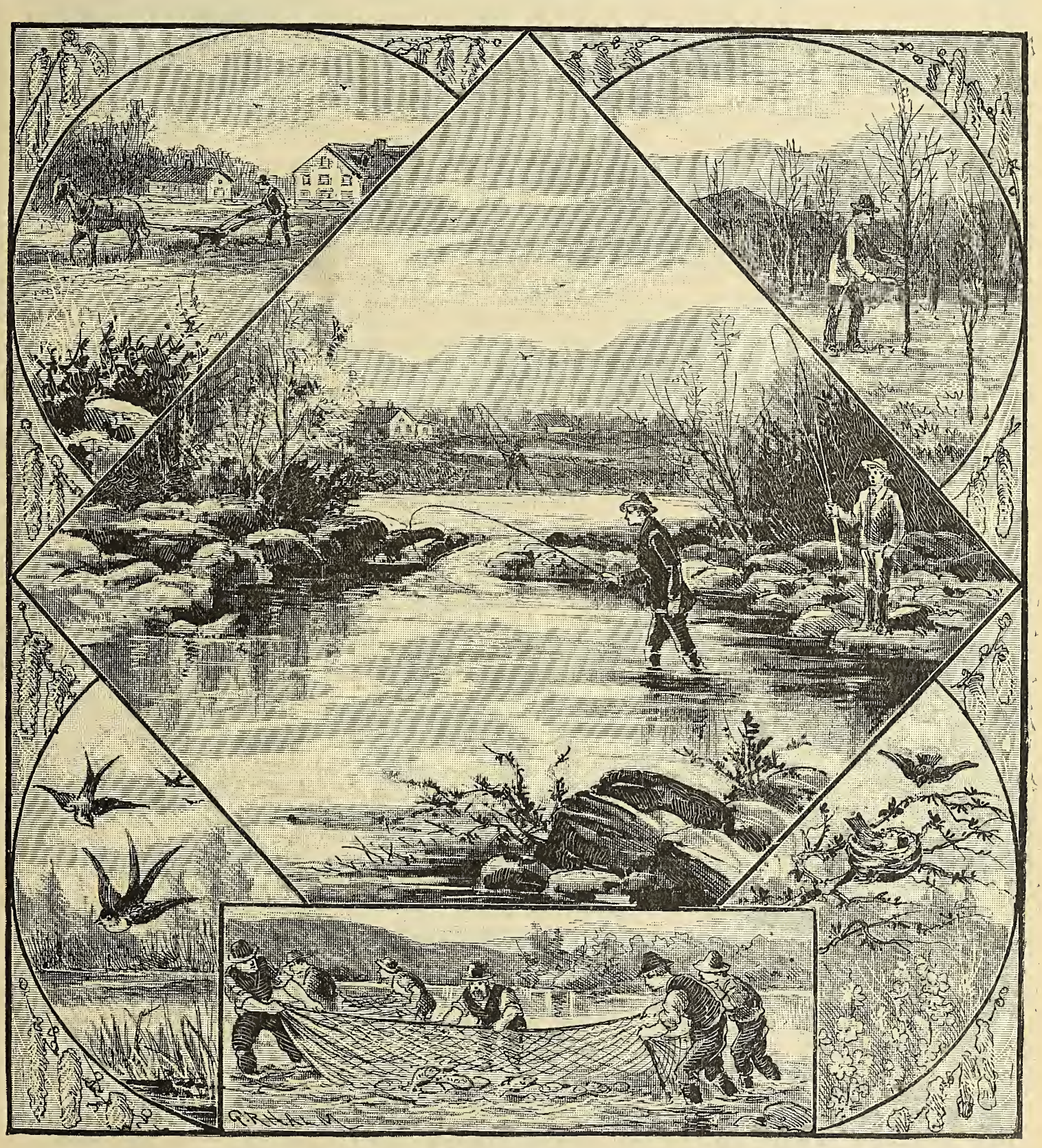
AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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APRIL DAYS.

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Contents of this Number.

[Articles marked with a star (*) are illustrated; the figure with the star indicates the *number* of illustrations.

Animal Ailments....148
Apiary, The....151
April Days....*..145
Barn, Hillside Cattle....*7..156
Berry Patch, The....163
Board for Squaring-Fields....*..162
Boxes, Transplanting....*..163
BOYS AND GIRLS' COLUMNS:
How Tommy Celebrated the First of April....*..168
An Illustrated Rebus....169
The Doctor's Talks....169
The Young Musician....*..170
Our Tame Crow....170
Bracing Fence and other Posts....*..151
Button-bush—A Handsome Shrub....*..164
"Calf-Kill," More About....153
Cardoon, What is....*..165
Cellar, An Above Ground....2*..147
Chats with Readers....159
Cistern, Connecting an Old and New....*..153
Colts, Bitting....*..162
Currant Bush, One....150
Drag, The....2*..148
Dwelling, An Old Improved....2*..148
Early Amber in California....151
Eggs in Winter....153
Everlasting Flowers—Improved....*..165
Errors and Facts in Meteorology....150
Fairs, More Local, Needed....162
Fences across Freshet Streams....*..155
Filberts, The Cultivation of....163
Figs in California....152
Garden, Kitchen and Market....147
Garden, Flower and Lawn....147
Grape Vine, Pruning the....163
Greenhouse and Window Plants....147
Hand-Light, A Useful....2*..154
Hints, Helpful....149
Home, The Far-West Pioneer....8*..158
HOUSEHOLD.
Box Window Garden....*..166
Home-made Easel....166
A Word on Cooking....166
Table Decorations....2*..166
Dead-Fall for Mice....*..167
Box Clothes Hamper....167
Hints About Making Rag Carpets....167
To Catch Window Drip....*..167
Care of the Teeth....167
Toe and Heel Boot Jack....*..167
Inventions, Our Record of Agricultural....22*...171,172
Jack, Wagon, An Improved....*..155
Kale, A New Curled....*..164
Latch for Barn Door on Hinges....*..151
Lightning and Lightning Rods....157
Live Stock Notes....146
Louisiana Purchase, The....152
Manuring, Heavy in the Garden....165
Nests, Good for Sitting Hens....*..153
Orchard and Nursery....146
Peas, The Eatable-Podded....*..152
Pests, Prairie....158
Plantain and Other Weeds....154
Planting, Row—Simple Marker....*..163
Poultry House in Sections....3*..150
Poultry Suggestions....148
Raspberry, A New Early—The Hansell....*..164
Rats, To Drive Away....157
Road Wash, Saving the....152
Roses, How Produced Cheaply....*..154
Ruts, Getting Out of the....155
Seeds and Cions, Volunteer Distribution of....153
Sheep, Lincoln....*..149
Stones, Moving Heavy....*..153
Strawberries on the Farm....155
Swarming and How to Manage It....151
Things Early, Have Many More....162
Tools, Teach the Boys to Use....153
Truck, Early, in Florida....5*..160
Tubes, Milking....148
Tubes, Potato and Seed....2*..155
Vegetables, The Shape of—The Parsnip....*..165
Vegetables, Some not Generally Grown....147
Well Windlass, Improved....*..162
Work, Farm, for the Month....146
Yard, Large Poultry....156

See another Page for NEW PREMIUMS for New Subscribers.

Canvassers Wanted Everywhere.

Good pay, appropriate and lucrative occupation for ladies as well as men. Profitable work for the spring months. See elsewhere for full particulars.

April to April.

As every number of the *American Agriculturist* is complete in itself, new subscriptions can begin with any issue. Do not suppose that because three months of this year are gone it is too late to subscribe for 1884. New subscribers can begin with this April issue and have their subscription continue until April next year. There is no better month to subscribe for a farm journal than the present, when spring work on the farm is commencing and nature wakes from long winter repose.

Our Microscope.

The demand for our new Microscope, of which full particulars were given in the last issue of the *American Agriculturist*, is so great, our friends will have to bear with us a little until their orders are filled. The Microscope will be sent to them in the order in which their applications are received. If any delay occurs, it will be due to the fact that our manufacturers are employing every means to render the new Microscope, made expressly for us, as nearly perfect as possible. See elsewhere.

Our Book Premiums.

The demand for the four valuable books offered by us last month as Premiums for new subscriptions to the *American Agriculturist*, has been so great that we have decided to extend the time during which they may be procured for thirty days longer. Farm Conveniences, Household Conveniences, Barn Plans, and Cottage Houses are, each one of them, worth more than the subscription price. Any one of these books, however, will be presented free at our office to the sender of a new subscription with $1.50 (his own if it be new), or will be sent by mail on receipt of 10 cents extra for postage.

Do not be Imposed upon.

We last month gave a description of the bogus Agricultural papers, which thrive by lottery and other fraudulent schemes. The House of Representatives at Washington has now passed a bill, excluding from the mails, all papers advertising lottery schemes. If this bill becomes a law, it will deal a death-blow to the bogus agricultural papers, which steal all their agricultural matter from this periodical, and other meritorious journals, like the "Country Gentleman," for example, and then make use of the mails to float their fraudulent schemes among farmers. For further particulars, see the back part of this number.

Our Advertising Patronage.

The great display presented by our advertising columns during the past period of depression is a marvel to other journals. The secret of this success is due not only to the large circulation of the *American Agriculturist*, but to the fact that we exclude from our columns all advertisements of a doubtful character. During the past year advertisements to the amount of nearly $50,000 have been declined because we could not safely endorse the advertisers. The very day on which we write this paragraph, various advertisements amounting to over one thousand dollars have been received for insertion in this April issue of the paper, but have been refused because not of an unexceptionable character. We know of but one other paper which would not have inserted *all* of these advertisements.

GARDEN AND



April is a busy month and all work should have been thoroughly planned before this. Sow early crops only so soon as the ground can be properly prepared. A good seed bed is the first essential in successful grain growing. Make the soil deep, rich and mellow. Use all the barn-yard manure to be obtained and supplement with a good commercial fertilizer. Too many farmers starve their crops and therefore cry poverty themselves. Sow only the best varieties of grain. Give a well-prepared soil a chance to produce the best of the best. Take good care of the crops after they are sown. Keep the horse cultivator running, and kill all weeds in hoed crops before they get old enough to steal the costly plant food. No soil, however rich, has any room for thistles, plantains, or other plant pests. Lead the work instead of being driven by it.

Live Stock Notes.

The coat is now changing on horses and cattle, and carding aids in shedding the hair. Avoid medicines as a rule. Horses hard at work need a plenty of dry, wholesome food. Look well to the feet and those parts upon which the harness may make galls. Keep the collars clean, and close fitting to the shoulders. Garget in new-milch cows may be prevented by frequently drawing away the milk from the udder. Calves are easily taught to drink from the pail. Remove them from the cows on the third or fourth day. Save only superior calves from the best cows to build up the herd. Ewes with lambs need abundant feed or else they and their young will suffer. If ticks become troublesome use a dip of tobacco water. The pig is a machine for converting house wastes and corn into pork. Keep this fact always in the mind.

Orchard and Fruit Garden.

Planting is the important work of the month. A horticultural friend declares that trees are not to be "set," that posts are set, but trees should be "planted." Orchard planting will be an important work, and the manner of doing it will influence the future well-being of the orchard. A nursery tree when taken up is deprived of half or more of its roots. If it is planted with all of its top, each bud upon every branch will make a demand for food, which the roots cannot meet. The growth will be a poor, starved one, and the orchard will make a bad beginning. Nurserymen do not prepare the trees for planting; they know that the inexperienced buyer will judge of the trees by the size of the top. It is important that each branch be cut back to diminish the demand upon the roots.

Grafting should be finished. A good fruit tree occupies no more room than a bad one. Insects demand attention. So soon as there is food insects will be ready to eat it. Watch for the first "tents" of the caterpillar and remove them while small.

Cuttings of shrubs, grape vines, etc., should be set out early. A mulch over the surface of the soil before dry weather comes will greatly help them.

If berries are to be shipped ascertain what

baskets are most popular in the market, and use that kind. Have all crates plainly marked.

Kitchen and Market Garden.

Success in the garden largely depends upon having good seeds and sowing them at the right time. Do not depend upon seeds of doubtful vitality, but test them beforehand. Count out twenty seeds and sow them in a cup or other vessel of soil, and note what share comes up. The seeds of tender vegetables should not be sown until the proper time to plant corn. In raising vegetables for market sow those kinds that are popular in the locality.

Plants in hot-beds should be hardened off gradually to prepare them for the open air. Hot-beds at this season need close attention. If the sashes are left closed a short time, the hot sun will destroy the plants and undo the work of weeks. In sowing seeds success often depends upon bringing the soil in close contact with them. Some gardeners tread down the soil over the seeds with the feet.

Asparagus is a crop well suited to farmers. It is always in demand and the market rarely overstocked. If not sold at once it will keep several days. Sow seeds to raise plants with which to set out a field next year. Prepare the soil as for a root crop, mark out drills fifteen inches apart and sow the seeds rather thinly, covering an inch deep. When well up keep clean by use of the hoe and thin with the hoe, leaving the plants as far apart as the width of its blade. If they have good soil and good cultivation the plants will, in one season, grow large enough to set out the next spring.

Flower Garden and Lawn.

The lawn should be cleared of leaves, sticks and other rubbish by the use of a rake or a stiff stable broom. Artificial fertilizers are preferable to stable manure, unless that is so well decomposed that all weed-seeds are killed. A hundred pounds each to the acre, of nitrate of soda and some good superphosphate, make an excellent dressing for lawns.

The decoration of small lawns in village and city front yards is more effective with a single bold clump than to cut it up with small flower beds. A group of castor-oil plants, or if the place is small, a single one, is very showy ; a clump of cannas surrounded by gladioluses is also effective. Where flowers are grown to be seen in the bed, one does not like to cut them. Have a separate bed to supply cut flowers in plenty to which all who wish flowers can go without asking permission.

After herbaceous perennials have been three or four years in one place they need to be taken up, divided, and re-planted in fresh soil. This should be done very early. Coleuses, geraniums, and other bedding plants should not be planted out until the soil is warmed, and it should be well enriched. If there are no woody climbers upon the porch or veranda, such as honeysuckles, etc., plant some this spring. Annual climbers—morning glories, cypress vine, thunbergia, canary-bird flower, etc.—are useful to hide unsightly fences, etc. Sow the seeds when the soil is warm and dry.

Green-house and Window Plants.

The increasing heat of the sun makes ventilation necessary, and the demand for water must be supplied. Plants that are to go into the border must be hardened off by gradual exposure. Insects will rapidly increase and frequent attention will be needed. Hyacinths, tulips, etc., that have bloomed may be turned out into a reserve bed, and will give flowers useful for cutting in future years. Shading will soon be needed. Small green-houses and windows may be shaded by a curtain of sheeting. Large green-houses are most conveniently shaded with common lime white-wash, made rather thin. This is spattered upon the glass with the brush, thinly at first, increasing the spattering weekly, as the sun gets hotter and more protection is needed. Seeds of balsams, asters, and many others, may be sown in boxes in the window. Gladiolus bulbs may be planted as soon as the soil is dry. Make plantings at intervals of a week or so.

An Above-Ground Cellar of Wood.

In January, page 11, Mr. Rexford strongly recommended building cellars above ground, and not under the dwelling, as is the nearly universal custom, and he gave some good reasons. In response to our call for suggestions, plans and estimates, Mr. Fred. Gruudy, Morrisonville, Ill., sends us a sketch and description of one made of wood, which he says answers its purpose fully as well as one made of brick; that nothing has ever frozen in it, and that once when the thermometer marked thirty-nine below zero outside, the one inside indicated thirty-four above, and a lighted lamp raised it to forty degrees in an hour. Its floor is on a level with that of the kitchen, with which it is connected by an enclosed passage, twelve feet long, lighted with a small window on one side and a large pane of glass in the door on the opposite side.—The foundation is two walls a single brick thick, extending eighteen inches into the ground, with a space between of one foot filled with well packed clay. On these walls sills made of two planks eighteen inches wide spiked together, are laid in cement, making them rat and mouse proof. The above-ground walls, eighteen inches thick, are formed with studding of planks two inches thick and sixteen inches wide, covered on the inside with planed inch-thick boards, and the same on the outside battened. The outer boards, standing upright, will need one or more horizontal pieces for nailing them to, or they would be spread by the packing material, if only nailed to the sills and plates. The space is filled with dry sawdust, which needs to be well stowed or it will settle and leave a blank space at the top. The ceiling is of inch boards nailed to two by six inch tie-beams or joists, covered with full two feet thickness of dry saw-dust. The roof is of boards, sheathed tightly and covered with rubber roofing held down with battens. Any material desired can be used for the roof; shingles, or better still, tin or galvanized iron is preferable to rubber or tarred paper, unless well protected with a gravel or abestos covering, as a low roof is subject to fire from sparks. The building is lighted by one double sash window, fitted with a sliding shutter inside. It has only one door, which opens into the passage. In the ground-plan, fig. 2: *a* is the door; *b*, window ; *c*, passage. A ventilator in the center of the roof can be opened or closed from the inside. Two grape-vines trained to cover the east and west sides aid in keeping the walls cool in summer. A well grown and closely trimmed barberry hedge, twelve feet from the building, on the north and west sides, is a valuable feature, as it causes the snow to bank high against the building and act as a blanket during the severe weather which usually follows a snow-storm. The cellar is kept clean and wholesome and used as a dairy as well as a cellar, winter and summer. The size and hight may be adapted to the wants of the owner. Of course the passage-way may be twelve feet as stated, or longer or shorter, allowing only length enough for the outside door. If such a cellar be used for a dairy room it is important to have an apartment with a perfectly tight division wall, as butter, and milk are very susceptible to odors from roots and vegetables. For a large vegetable and root or fruit cellar an outside double door opening directly into the cellar, will save much labor in carrying these articles around through the passage-way. The window might be constructed sufficiently large to admit of passing them through.

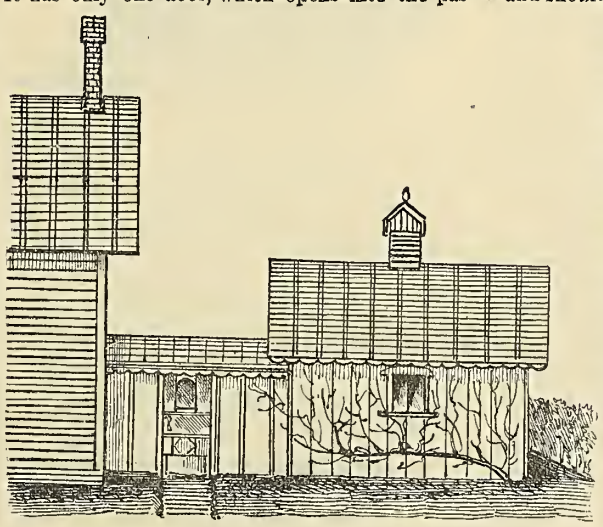


Fig. 1.—EXTERIOR OF AN ABOVE-GROUND CELLAR.

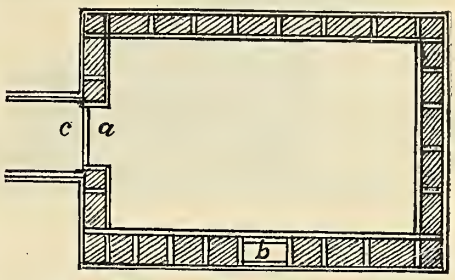


Fig. 2.—GROUND PLAN OF CELLAR.

Some Vegetables not Generally Grown.

POTATO ONIONS.—Those who wish early onions, can have them sooner from these than from sets. The seedsmen sell the bulbs, which soon grow into large ones. The Top Onions behave in the same manner, but we have not had so much experience with these. We find the Potato Onions very useful in the family garden. Try some of them.

SALSIFY is not generally grown, at least not in farmers' gardens. It is as easily managed as parsnip or other roots. The root is rarely more than an inch through at the larger end. By giving it a rich soil and thinning to five or six inches apart in the row, the size may be increased. This is often called "Oyster Plant," or "Vegetable Oyster." A soup made from it has somewhat the flavor of oyster soup. It may be cut into inches and stewed, or boiled tender, dipped in batter and fried.

SWEET HERBS will be in demand next winter, and should be provided now. The usual kinds are: Sage, thyme, summer savory, and sweet marjoram, to which may be added tarragon, basil, and spearmint. The first three named above should be sown in a seed bed, as soon as the weather is settled and the plants kept free of weeds, and well cultivated until June or July, when they may follow some earlier crop. The plants may be set a foot apart each way. Sweet Marjoram does best if sown where it is to grow. Sow the seeds in rows a foot apart, and then thin to the same distance in the row. Tarragon is a hardy perennial with a pleasant flavor, and is used in salads and pickles. The roots may be bought of the seedsmen. Mint, or spearmint, is much in demand in spring for the "mint sauce," to accompany spring lamb, and an excellent flavoring for soups. It is propagated by division of the roots, which are naturalized in many places. Basil is raised from the seeds like sage, etc.

PARSLEY is in demand not only for flavoring, but for ornamenting or garnishing dishes; the leaves of the finer kinds being really beautiful. The seeds are very slow in starting—often remaining several weeks in the ground, and when transplanted are slow in recovering. Thin seedlings or transplant to eight inches apart. Provide enough plants to allow some to be kept in a box, to afford leaves during the winter. In sowing seeds of winter cabbages, do not forget to try some of the Savoys, recommended last month, page 101. Brussells Sprouts, another variety of the cabbage, with small heads along the whole length of a tall "stump" or stalk is as easily raised as common cabbages. This is seldom raised in the market gardens.

An Old Dwelling Improved.

Mr. Jas. H. Rogers sends us a rough draft of his dwelling as it was and is now, and writes: "The old roof needed re-shingling, and while doing this

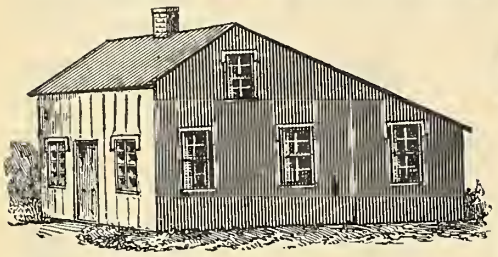


Fig. 1.—THE OLD HOUSE.

it was projected over the sides and ends, and a simple cornice added at small cost. The other changes are two windows in the gable instead of one; a small porch added in front, and a bay window with glass panels (not shown), was placed in the back

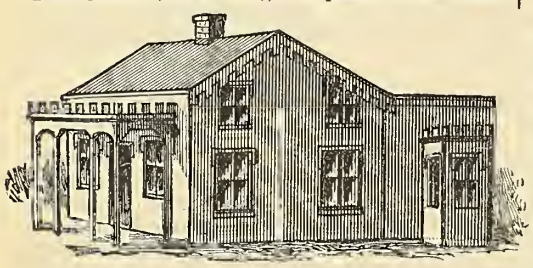


Fig. 2.—AFTER THE IMPROVEMENTS.

wing, which changed the dismal and cheerless sitting or family room, into the most pleasant room in the house, and greatly improved the exterior.

Practical Poultry Suggestions.

Many suggestions for the care and management of poultry intended as helps to beginners, are liable to mislead those with little experience, who should be cautious in trying all new methods presented. When recommended to use strong mixtures, like oil of sassafras, turpentine, kerosene, etc., on the chickens to kill the lice, avoid doing so unless desiring to kill the chickens as well. Sprinkling sulphur freely about their coops, and on their bodies, is a milder and quite as effective remedy. The best possible plan is not to allow lice to get a start, by keeping the premises thoroughly clean, and the buildings well white-washed. I have read that at the time parsley is abundant in the garden, it should be given to the fowls as a green food. It is not well, however, for it is likely to cause a looseness of the bowels, and dropping of soft-shelled eggs under the roosts. Allow the fowls access to tender grass a few minutes in each day, and give the parsley to the pig. Another suggestion is, to scatter air-slaked lime freely about the houses as an absorbent, and a deodorizer. But the continual motion of the fowls keeps the air filled with the choking lime dust, and soon causes injurious irritation in the air passages. Plaster, or a shovelful of dry soil thrown on the roost board, is better than lime. When fowls have a cold, it is better to use a little care in feeding for a few days, than to dose heavily with pills, red pepper, etc., etc., as some recommend. A cold or roup shows itself in different ways, by coughing or sneezing, and by swelled faces, watery eyes and nostrils, and the worst form is canker in the mouth. A simple cold can be easily managed and cured in a few days, by giving small quantities of sulphur in their warm dough, with a light sprinkling of red pepper occasionally, and warm water to drink. Castor oil, applied by pouring it down the throat from a small-necked bottle, is particularly good. In cases of canker, which is the worst form of cold or roup, more care is necessary. The diseased fowl must be immediately removed from the well ones, and pure water provided for them in clean dishes, in which a small piece of copperas may be dropped occasionally. Feed no hard grain, and mix the dough with hot milk, feeding it sparingly. I have before now advised those keeping poultry to raise a crop of mangels as vegetable food for laying hens in winter. Failing to raise a crop myself the past season, and not being able to find any, I procured a quantity of cow-horn turnips, hoping they would take the place of the mangles, but they do not satisfactorily, and I still say, for a winter green-food for fowls, nothing equals the beets. They keep well, and when cut open and placed in the feed boxes, the fowls will pick greedily at them as long as they last. If fowls do not have access to hay in the winter, it should not be given to them whole and dry, for if eaten in quantities it will obstruct the free passage of food through the crop, and they will become crop-bound. The early clippings of the lawn should be saved, and steamed with hot water, which will make it very good for fowls, and quite digestible. H. C. B.

The Drag.

Wherever introduced the drag is taking the place of the roller. In almost every way it does better work. If the ground is uneven the roller will not smooth it; the drag will. If the clods are hard and dry, and the rest of the ground loose, the roller will often simply push them down without crushing them; the drag grinds them fine. If the lumps are wet, the roller will be likely to press them into a solid mass, and while the drag will often tear them to pieces, leaves them loose to be dried by the sun and air. Figure 1 is the best form of drag, made of oak planks two inches thick, and about a foot or fourteen inches wide. If for four horses, the planks can be about twenty feet long; if for only two horses, ten or twelve feet long. These are bolted firmly together, over-lapping about two inches, as shown. About two feet from each end of the front plank, a strap clevis is fixed to receive the double-trees, and a team is hitched to each, the driver standing on the drag behind. If the driver's weight is not enough, stones or logs may be added. For a two-horse drag, a hole is bored in the front plank about two feet on each

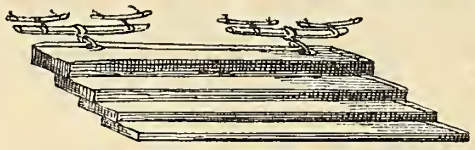


Fig. 1.—A PLANK DRAG.

side of its center, and a chain is then passed through these holes, connected with a clevis in front, to which the double-tree is attached.

Figure 2 shows another form, made of two logs, about a foot in diameter, and sixteen or eighteen feet long. Three cross-pieces are let into the logs, and pinned or bolted to hold them about one foot apart. A stout iron rod with hook in front for the double-tree, and a screw nut in the rear, fits a hole bored about two feet from each end of



Fig. 2.—A LOG DRAG.

the front log. This drag does not do quite so good work as the plank one, as there are no sharp edges to cut the clods, and it is more unwieldy; but it is quickly constructed from material always at hand, and for this reason is often made in preference to the other.

Milking Tubes.

An unusual number of inquiries about milking tubes have been received recently. Several years ago they were brought before the public, by a man who had some notoriety as a practical farmer and stock breeder, with a great flourish as convenient, practical and useful in any herd, and not injurious. No doubt at first he may have been honest about it, but he really tested only one or two of his own cows, and the only one we saw thus used had her udder ruined. Still the boom went on in spite of the warnings of this journal, and other editors, who took care to let their readers know what the matter was as soon as they learned it themselves. A dozen different forms were made, and some were patented, but all were worthless except in the hands of a skilful surgeon, and then in case of obstructions.

At times the insertion of a tube into the teat of the cow will empty the quarter rapidly of the milk, without harm to the cow. But there is one danger always present: on withdrawing the tube a bubble of air is very likely to escape from it into the udder, and there being no provision for absorbing of air thus introduced, it acts like any other foreign substance, and produces inflammation—garget, often most intense. All the efforts to prevent the escape of the air bubbles by bending the tubes, by attaching rubber tubes, and various other contrivances were in vain. Hundreds of cows had the garget and lost one or more quarters. Our advice given then and repeated now is, let milking tubes alone. They are no longer on sale that we know of, and ought not to be. It is important for a physician or surgeon to be able to draw off milk without pressure upon the teat or udder, but other people better be content to follow the old way in milking.

Animal Ailments.

PROF. D. D. SLADE, HARVARD UNIVERSITY.

AN IMPOVERISHED CALF.—"*A. A. W.*" writes from Slocumville, R. I.: "I have a calf dropped last August, weaned and turned out to grass in September, and cropped as well as any animal; eats any kind of fodder or grain, has some oil-meal every day, but is poor as a crow. Has a good appetite, is not lousy I think; still I have treated her for lice. What can I do to make her lay on some flesh?"—It is hardly possible that lice are numerous enough to affect the health and escape even the most superficial examination. Parasites of every description abound more especially on animals reduced in health and strength, and suffering from poverty and neglect. Under such circumstances lice are the effect, not the cause. Strict cleanliness, warm, dry, sunny well-ventilated quarters, thorough rubbing and brushing of the skin daily to stimulate the circulation, attention to the state of the bowels, are necessary factors in bringing about a better condition. Hasty pudding and milk given warm twice a day is a nourishing food. Sweet clover hay, or good rowen, with a few carrots cut fine, are essential.—The animal in question needs a change of diet, and whatever this may be, if appropriate and sufficient, with attention to the other points described, will soon result satisfactorily.

DISTEMPER IN DOGS.—"*C. M. W.*," Star City, Ind., writes: "What is good to give my dog, and what disease has he? He seems to be always chilled, and matter fills his eyes; breath very bad; breathing very heavy. I think he has distemper."—These are among the common symptoms of canine distemper, and our correspondent is probably right in his diagnosis. As the tendency in this disease is toward debility and emaciation, all depleting remedies should be avoided. Almost all parts of the body may become implicated, but the respiratory and digestive organs are most frequently attacked. The treatment must be directed towards the various complications that may arise. Under all circumstances the general treatment is obvious. The dog should have dry, warm, well aired quarters, and his food milk with bread, or milk porridge. Cooked meat may be given according to circumstances. A gentle laxative of half an ounce of castor oil may be given, followed the next day if necessary, by three grains of ipecac twice a day until the breathing becomes better. Afterwards as tonics twelve grains of gentian or three grains of sulphate of iron should be given with the food three times a day, and the diet may be more stimulating and generally richer as he improves.

STUNTED COLT.—"*L. H.*," Lancaster, Mass., describes a colt of thirty months as small and of slow

growth. "At present she eats well, has good hay, oats and bran mixed and wet with rain water once a day. Last summer the coat was not shed, except as it wore off. The dam was loaned when with foal, worked and starved nearly to death. I suppose this is part of the trouble. I have given alteratives and various combinations with but poor results."—The animal inherits the consequences of the bad treatment of the dam during pregnancy. "Like produces like." This fact is shown particularly in the feeble powers of the skin, its inability to shed the hair; and again in the impoverished condition of the system generally, the result of improper and deficient nutrition. Patience may be rewarded in this case by better results than can now be anticipated. Supply the most nutritious diet possible, especially one in which carrots is a daily portion of the diet. Daily rub the skin thoroughly with the brush. Supply warm, sunny quarters, with opportunity for exercise in a sheltered yard. In short, do everything that may maintain the best state of health. If no improvement appears after several months of the above treatment, then possibly purgatives may be given to stimulate the digestive powers, but with this exception, it is best to avoid using drugs and "condition powders."

Swollen Leg.—"*N. D. H.*," Raymond, Nebraska, writes that he has a mare whose leg is swollen and was in this condition at time of purchase. "She does not limp; and the swelling goes down some when she travels, and is at its largest when she is standing idle."—Swelled legs indicate imperfect circulation in the parts, and are due to a stagnation of their fluids. This condition is often the result of constitutional debility, and may be inherited. It is frequently brought on by irregular exercise, at one time excessive and then a period of idleness. It is often impossible to ascertain the exciting cause, especially when the animal is otherwise in good health. The treatment should consist of thorough grooming of the entire body, of hand rubbing of the affected limb, followed by the proper application of a flannel bandage, worn constantly when not at work, and this should be regular and not excessive. If necessary, mild diuretics, or physic, may be combined with the above treatment, but avoid these if possible.

Cracked Heels.—"*S. C.*," Milton, Pa., states the following case: "A mare six years old, well bred, free driver, cracks come in the usual place of 'scratches;' are not always sore. The scars do not go away. After a hard day's drive these places seem feverish and she walks stiff next morning. Bran mashes for a few days afford relief. Have exhausted all kinds of external remedies. Owned her a year and a half, and she is better than when I bought her. Is kept in a box stall, eats well, is well groomed, has a good coat, and is in fine spirits."—The cracks are but an aggravated form of the disease known as Scratches, which is an inflammation of the heels, and due to both local and constitutional causes. The former are long exposure to wet and cold, washing the parts with caustic soaps and neglecting to dry them thoroughly; putting the animal into stall without attention to the parts after long and fatiguing exercise and exposing the heels to cold draughts of air. The constitutional causes are shown by the imperfect circulation, and consequent swelling of limb, and want of activity in the vessels of the heels. This condition is often found in debilitated horses, and also in others apparently in good condition, but whose skin is particularly sensitive to external irritation. The treatment must be both general and local. Attention to the maintenance of the health by proper nutrition, cleanliness of the skin, regular exercise, etc., are all of the first importance. Tonics such as iodide of iron, gentian, etc., are necessary if there is debility. Green food in the form of roots, especially carrots, with occasional bran mashes, serve as gentle laxatives. For local treatment, if the cracks are deep, and the parts stiff and sore, apply a poultice, upon the surface of which may be sprinkled a lotion of sugar of lead. Afterwards put into the cracks the benzoated oxide of zinc ointment, carefully, twice a day. A well-applied bandage from the foot upwards will assist the cure by its moderate pressure. Removing the hair about the heels is often followed by bad cracks; so clipping the legs is inadmissable.

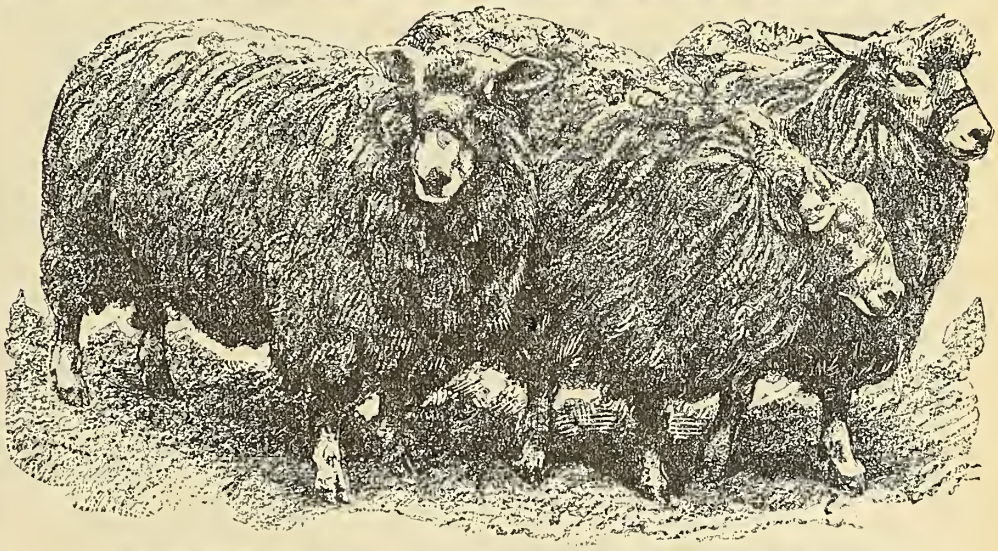
Distorted Horns.—"*A. T. N.*," of Franklin, N. Y., writes: "We have a grade Jersey cow nearly four years old, which was stabled in a narrow horse stall when a yearling. I fed her hay in one stall and roots in another, once a day. As she turned to change stalls her stub horns rubbed along the sides and they have grown lopped down towards her nose, pointing inwards. I commenced rasping the right one (which turned nearly at right angles with the head). It was then about a quarter of an inch from the side of the face. Rasping it from time to time did not change its twist. When it got within an eighth of an inch from the face I sawed off about two inches, as there is danger in sawing off more. What shall I do?"—Though the form of horn in the several breeds follow general laws, assuming different shapes according to the breed and sex, it occasionally happens that from some unexplained cause, an unusual shape is developed. It is not probable that the supposed cause (in the above case) had anything to do with the twist, and the owner can rest well assured that nature will be perfectly competent to manage this without any interference by any one.

Helpful Hints.

When oats or other feed get low in the granary, instead of straining to reach them nail a stout strip to a bucket or box with which they can be easily lifted. A horse of mine takes especial delight in rolling in mud or manure. I tie an old broom-stick to the curry-comb and stand off at a clean and safe distance until I get the worst of it removed..... If in plowing the laud-side horse is a lazy one and crowds over against the one in the furrows, take an inch board about six inches square, and through a hole in the center drive a wooden pin sharpened at one end. Tie this to the back-band of the furrow horse so that the lazy one will strike it every time he crowds, and he will soon get tired of doing so. Always have on hand a paper of copper rivets of assorted sizes and a piece of oiled leather for cutting strings to keep the harness mended with; then breaks can be readily mended, or those threatened in tugs, lines, straps, etc., either by rivetting or sewing with the stout leather string.....When a calf persists in sucking after being separated from its dam for several weeks, take an old halter and through the strap passing around in front of the nose put nails, having the points filed sharp and standing outward. A piece of leather sewed over the heads keeps the nails in place. With this halter on the calf the cow will kick and keep it at a distance and it will soon give up in disgust..... Formerly I was often annoyed and delayed by the loosening of nuts on coulters or rolling cutter, until I hit upon the plan of putting leather washers under the nuts, which stopped their working loose. If at work in a field where you can not place the jug of drinking water in the shade set it in the furrow, throw a bunch of grass over the mouth to keep it clean, and plow the jug under. The ground will shield it frow the hot sun, and being cool and damp will help keep the water cool.....In plowing, to keep dirt out of the shoes, take the legs of an old pair of trousers and cut off pieces about a foot long. At opposite points of each sew two strings. Draw the pieces on over the shoes, tie the strings down underneath just in front of the heel. Then fasten the upper ends of the pieces around above the ankles with elastic garters.....For a marker to lay off corn rows among stumps, put two wagon wheels on an axle of a length to keep the wheels just the distance apart the rows are desired. Any stout stick of wood will do for the axle. Fix on a seat to ride if desired. This marker will pass over ordinary stumps, and can be easily turned to avoid those directly in the way of a wheel. J. S.

Lincoln Sheep.

The popularity of the breed of sheep—of which we present an engraving, representing a group of



A GROUP OF PRIZE LINCOLN LAMBS.—*Engraved after the Agricultural Gazette, London.*

lambs, comprising a first prize pen at the late Smithfield fat cattle show—has been on the increase in this country ever since its first introduction. The Sheep of Lincolnshire were heavy-carcassed and leggy, but carried very long fleeces. They were greatly benefited by crosses with the Leicesters as improved by Mr. Bakewell, and known as "Dishley's," from the name of his place. Still the Lincolns retained characteristics of their own which render them quite distinct from other long-wool breeds of the present day. They show this both in the wool and in the carcass, and have been greatly improved by judicious breeding in recent years. They are regarded by their breeders in this country as hardy, hearty feeders, heavy, well-shaped, and peculiarly well and long-wooled. In each of these particulars they have been improved and are in all respects a noble and excellent breed for early lambs, for mutton, and for fleece. A recent writer attributes some of their peculiar excellencies to an importation of big Dutch long-wool sheep said to have been made about one hundred and fifty years ago into Lincolnshire. It is not at all improbable that such an importation was made, as size, and length of fleece were qualities then more highly prized than compactness of carcass. Mr. Bakewell, who so improved the Leicesters that he may almost be said to have created the breed as we now know it, paid little attention to the fleece, and neglected mere size in preference to form and quality. What blood the Lincolns possess which responds so kindly to good breeding practices and careful selection is not certainly known, but it is a fact that it is in the blood and that selection alone would not so promptly fix the valuable peculiarities of fleece and carcass which they now possess.

Poultry House in Sections.

A. WOOD, R. I.

The Poultry House, shown in figures 1, 2 and 3, is designed to have a central building, with as many sections added on each side as may be required by the wants and circumstances of the owner. The estimates given below show that the central building will cost $59.97, and each added section, $33.72. As indicated in figures 1 and 2, the glass fronts of the sections lean back at the top, and the front roof follows the same angle, the sash sliding up between the rafters.—The main room, twelve feet square, with eight-foot posts, is for storing and preparing food, etc., dressing poultry, packing eggs, and may contain an incubator. One section might be kept for a hatching room. The house and sections should face the south or south-east, and its rear be against or into a bank when practicable. The elevation shows brick underpinning; stone would be cheaper in some localities, as would be plain matched pine or plain boards and battens, instead of clapboards.—Cheaper ventilators may be provided, but looks are worth a little.—There is a platform under the roosts, from which the droppings are collected in the alley-way, and this should be done daily in winter. The partitions between the alley and the roosting room are of two inch slats. The roosts should be hinged and hook up for convenience in cleaning. The flooring of the sections is of fine gravel. Water can be conveniently supplied to the entire range by an inch pipe, with a place on each section, two feet

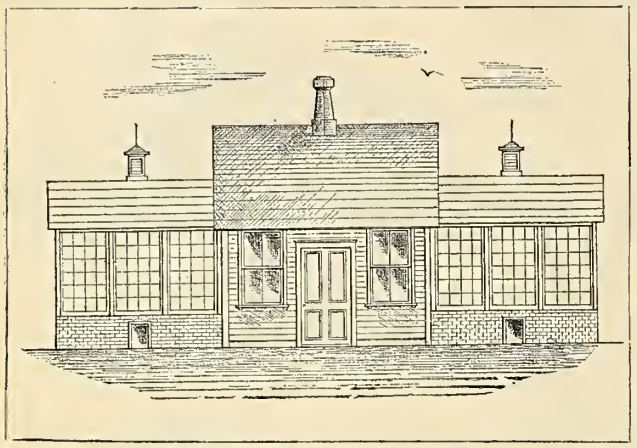


Fig. 1.—FRONT OF POULTRY HOUSE.

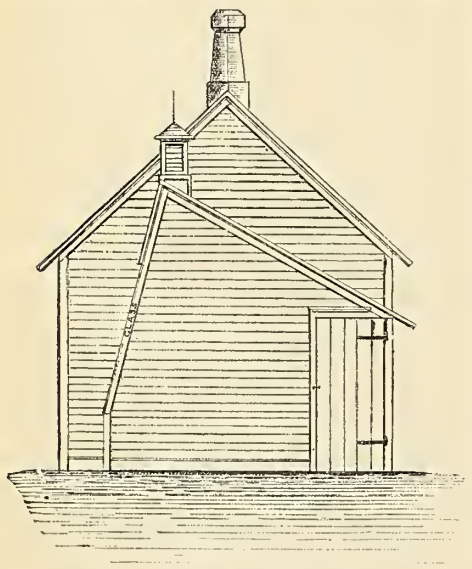


Fig. 2.—END VIEW OF POULTRY HOUSE.

long and four inches in diameter, open at the top as a drinking trough; the water to be regulated by a floating valve in the supply tank.—The houses can be warmed by hot-air pipes from the main building, sunk in the gravel. The water supply pipe, if laid along these, will be kept from freezing. There should be connected with each section a yard of the same width (ten feet) and fifty feet long. The cost of each yard would be about thirteen dollars and thirty-nine cents; that is, thirteen posts, at ten cents; one hundred and forty-six feet of two by four inch joists, two dollars and thirty-four cents; three hundred and twenty-five feet of two inch slats, eight feet long, six dollars and a half: nails and labor, three dollars and a quarter. There ought not to be over fifteen fowls in each section, and they would do better with only eight in a section. The estimate for a section and its yard is forty-seven dollars and eleven cents, or with paint, say fifty dollars. Ten per cent. on this, or five dollars per annum, would be fifty cents a year each if only ten fowls be kept in a section, adding pro rata for the expense of the central building. Any experienced poultry raiser will readily admit that the product of fowls thus kept separate, with abundant yard room, would be far greater than the cost.

Estimate for the Main or Central Building.

TIMBER: 109 feet of 4 by 4 inch, for sills and posts; 120 feet of 2 by six inch for floor, joists and plates; 136 feet of 3 by 4 inch for studs, girts, etc.; total, 365 feet spruce @ $16 per M.	$5.84
175 feet spruce flooring, $3.85; 240 feet hemlock roofing, $3.36; 500 feet matched pine, $12.50; 2,500 shingles @$3.25 per M., $8.12	27.83
3½ cords stone work, $3.50; 1 foot 8 inch cement stone chimney top and pipe complete, $5.80	9.30
2 windows, $4.00; 1 door, $2; 2 hinges, $1	7.00
Carpenter work and nails	10.00
Total, (without painting)	**$59.97**



Fig. 3.—GROUND PLAN OF POULTRY HOUSE.

Estimate for Each Section.

40 feet of 4 by 4 inch for sills; 4 rafters 2 by 6 inch by 11 feet, and 4 by 9 feet for front (80 feet); 46 feet of 3 by 4 inch studding and girts. Total, 176 feet spruce timber @ $16 per M.	$2.82
140 feet hemlock roofing boards	1.96
1,500 shingles @$3.25 per M.	4.87
50 feet roost slats, $1.00; 1 pair hinges, 50c.	1.50
3 sash @$2.25, $6.75; ventilator, $5.00	11.75
4 cords of stone work, @$1.00	4.00
Carpenter work and nails	7.00
Total, per section, (without paint)	$33.90

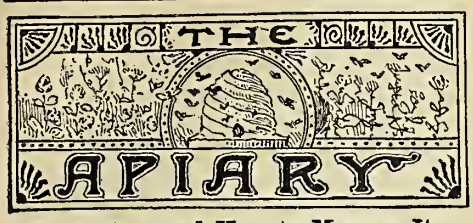
Errors and Facts in Meteorology.

The communication (January *American Agriculturist*, p. 12) entitled "Do Trees Increase Rainfall?" contains some valuable arguments, but some of its teaching is likely to give wrong impressions. A supposed wind is referred to as passing from the Atlantic westward, and crossing the Rocky Mountains. It is well known to all students of meteorology that no wind at our latitude blowing from the Atlantic passes over those mountains. Storm centers, or areas of low barometer, within the United States almost universally travel eastward, tending to the north, rarely going to the south and never to the west. No trade winds pass westward over the United States. All other winds flow to areas of low barometer to feed the updraft. A low barometer in Ohio draws to its center, with a spiral motion, air from all sides, and its influence is often so great as to affect by its indraft the air on the Atlantic coast; but, a low center over or west of the Rocky Mountains can never exert sufficient power to carry any air from the Atlantic so far westward. Suppose his proposition possible. Then the moist air from the Atlantic, but partially robbed of its moisture by the Alleghanies, after crossing the Mississippi, would be elevated; this elevation would reduce its temperature, and therefore its absorptive power, thus causing part of its moisture to fall as rain on Western Kansas and Eastern Colorado, and removing the aridity of that region, just as the Gulf winds passing up the Ohio Valley deposit their moisture on the western slope of the Alleghanies, thereby producing the great floods of which we often have an illustration.

The facts are as follows: Winds of the Pacific are by the coast range elevated, cooled, and robbed of much of their moisture; they then pass over the great basin in an absorptive condition, taking up moisture; hence the aridity of the region of Salt Lake. Again more highly elevated in passing up over the Rockies, with reduction of temperature, they become rain producers on their western face. After crossing the crest they are lowered in position, with increased temperature, and become absorptive winds, taking up much moisture from the eastern part of Colorado and from Western Kansas. Passing eastward toward the Mississippi Valley, they come in contact with the warm, moist Gulf winds, reducing the absorptive power of the latter (the mingling of the two often producing cyclones); their excess of moisture is deposited, and continues to be progressively deposited as the mingled air is elevated in passing up the west flank of the Alleghanies. East of these mountains there is no arid region like that east of the Rockies, merely because of its proximity to the Atlantic ocean, and of the Gulf storms passing northeast parallel to the coast. S. HUSTON.

One Currant Bush.

Have you, farmer, or any one else who has the land, an abundance of currants? There should be on every farm at least a sufficient number of bushes to afford all the currants the family can use, and if one resides near a town or village it will be well to have a few more to carry to market.—"Can't bother with picking currants," do you say? The girls will pick them, and you can take them, and mind, don't forget to bring the girls the money for which they sold. But before selling a currant, there should be an abundant supply for the family, not only through the fruiting season but through the winter. The fresh fruit is most acceptable and refreshing; it is true that its acidity needs to be modified by sugar, but sugar is food, and it is cheaper to buy sugar than medicines, and sugared currants are healthful. For the winter, currants may be canned and made into jelly, easily the best of all jellies. A dozen bushes, when in full bearing, will yield currants enough for a family of moderate size. If fruit is to be marketed, two or three dozen or even a hundred bushes will be needed. Don't set a few bushes and leave to the family the fruit that is not marketed. Currant bushes can be bought for about fifty cents a dozen. If even this moderate outlay is not convenient, a single bush can be bought for ten cents, or if sent by mail for fifteen cents, and with one bush there is hardly any limit to the number that may be raised from it in a few years. In behalf of the family and future possible profit we say, get one currant bush, at least, and as many more as can be afforded. As to kinds, the Versailles for red, and White Grape for white, are standard varieties; there are other and more costly kinds. If both cannot be planted take red instead of white. The bushes, few or many, should be planted in good soil, not against a fence as we often see them, but where they will have air and light, and where one can go all around to cultivate them and to pick the fruit. Set the bushes five feet apart in rich garden soil, and at the approach of warm weather cover the soil over the roots with straw or other mulch. As dealers differ in their treatment of the bushes before they send them out, it is difficult to say whether they should be pruned at planting or not. If the bushes do not appear to have been trimmed it will be well to cut away from one half to two thirds of the stems. If blossoms appear, it will be better for the future of the bush to pick them off. How to make many bushes of one and what to do with the bushes after they have made a season's growth, will be attended to at the proper time. Our present object is to have a beginning made.



Swarming, and How to Manage It.

W. Z. HUTCHINSON.

We often hear the remark, "As soon as my bees became strong in numbers, and were working nicely in the hoxes, they swarmed, and away went all prospects of a honey crop."—This inelination to swarm is with many the chief obstacle to producing comb honey. A few years ago non-swarming hives were loudly praised (by their vendors); at present, such nonsense would fall on deaf ears.—In producing extracted honey, swarming can practically be prevented; but in an apiary run for comb honey, it never has been prevented, probably never will be, and, if rightly managed, is not undesirable. One good method of swarming is the following:

By shading and ventilating the hives, and supplying plenty of room in the surplus department, swarming will usually he retarded until the colonies have stored considerable honey in the hives and are populous enough to send out large swarms, and a few colonies will not swarm at all. When a swarm issues, set the parent hive to one side, and place on the old stand a new hive having its frames filled with wired foundation. Then cover the new hive with a queen-excluding honey-hoard, setting the boxes taken from the old hive upon the new one; shake the clustered swarm into a basket, cover with a cloth, carry it to the new hive and shake them down in front of it. The hees will readily enter, and, in less than half an hour, they will again he at work in the same hoxes they so recently and hastily deserted, and with that energy so characteristic of a new swarm. It is a great mistake to wait even twenty-four hours before giving boxes to a newly-hived swarm.—As soon as they have fairly settled down to business, iu half an hour perhaps, place the old hive back alongside the new one, the rear ends nearly touching, hut with the front of the old hive turned to one side at an angle of say forty-five degrees. All the bees out foraging when the swarm issued, and all afterwards leaving the old hive, will return to the old location and enter the new hive, thus "booming" the new swarm already working in the hoxes. By turuing the old hive a few inches daily, it can in three or four days be hrought parallel with and close to the new one. The bees of each hive will thereafter recognize and enter their own homes. These two hives practically occupy the same stand, and if either were removed during their absence, the returning bees would enter the one remaining.

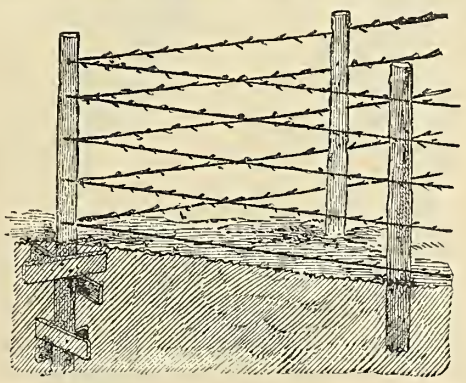
In the old hive the bees are hatching daily by the thousands, and in about eight days after the first swarm issued—when the young queens usually begin to hatch—the probabilities are that the old hive, if undisturbed, will send out auother swarm. This is undesirable, and is prevented by removing the old hive to a new stand, two or three rods distant, on about the sixth or seventh day from the first swarming. All the flying bees belonging to it—enough to make quite a little swarm—on returning to the old location, enter the new hive, thus giving its colony another boom, and so reducing the numbers in the old hive that swarming is abandoned, and the young queens are allowed to fight it out for the "survival of the fittest." In about three weeks after the old hive first swarmed its young queen will commence laying, when, if the honey flow continues, it should be given a case of sections. With this management there is no opening of hives, no hunting for and cutting out of queen cells, no fussing or hother. In the writer's experience, only about one colony in twenty-five has cast an after swarm; none of the first or prime swarms have swarmed; and the amount of surplus honey obtained has been greater than from colonies that have not swarmed.—A second or after swarm can be hived upon frames of wired foundations, and the hive placed by the side of the old one; and as soon as the queen is fecundated and laying, the entire swarm can be shaken down in front of the old hive, and the drawn-out frames of foundation be set away for future use. If a third swarm should issue, it can be treated in the same manner as described above, by placing it upon the opposite side of the parent stock.

In the writer's apiary two large tin pails filled with water are always kept near the shop door, with a fountain pump hanging over them; and if a swarm shows any disposition to leave, or is slow in clustering when other swarms are expected, it receives such a sprinkling that it soon "hangs itself up to dry." With such a pump and plenty of water it is next to impossible for a swarm to abscond. The implement is also useful to prevent uniting or clustering of swarms issuing at the same time. Near the tin pails stand two splint clothes haskets, lined with cotton cloth, and each basket is furnished with a hurlap cover stitched to one side of it. As soon as a swarm has clustered it is shaken into one of these haskets, the cover flopped over, and if another swarm or something else demands immediate attention the basket and its contents can be set one side, to be disposed of at leisure.

After seeing the ease with which bees can be managed when allowed to swarm naturally, the energy with which they work, and the exeellent results obtained, the writer is decidedly opposed to artificial swarming—and also to queens with clipped wings. In the first place, when the bees swarm, the queen has to he found and eaged. The bees roam around a long time, and sometimes finally cluster. If another swarm comes out they are certain to unite with it. When the bees do return they often go piling into the wrong hive, perhaps hives; and if they do catch on to the proper one, instead of going in they often cluster all over its outside. Sometimes, after the queen has been allowed to run in she comes out again then of course the hees will follow her. In my experience a swarm having an unclipped queen can be hived aud he at work in that "whooping," "zipping," go-ahead style, in just about the same time that it takes a swarm with a clipped queen to make up its mind, sullenly and doggedly, to go back home.

Bracing Fence and Other Posts.

Much of the efficiency of all wire fences depends upon having the corner posts, aud others at frequent intervals, firmly braced against sagging. A large strong post to be deeply set is not always available, and is generally unsightly by comparison with others. Various devices have been giveu, many of them depending upon stones, but these

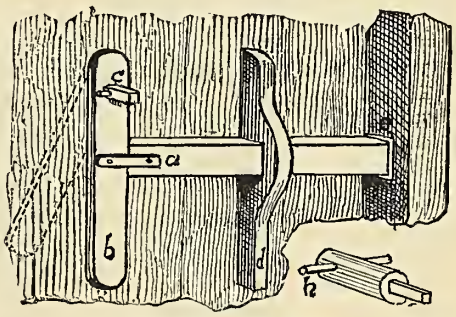


A CORNER POST BRACED.

are seldom available, on the prairies especially. Mr. A. C. Gable, Yorkville, Ill., sends us the following method, applicable to single posts, corner posts and to clothes-line supports. For the latter purpose Mr. G. says he erected two posts twelve yards apart, and though in constant use for six years, they are erect as ever. A little below the ground surface, on the side of the strain, a piece of durable board or plank, half a foot wide, and three to four feet long is spiked on to the post at right angles; and another piece about half as large is spiked on the opposite side near the foot of the post. When the ground is well packed around these they will hold very firmly. The size, width, thickness, and the depth in the ground, will depend upon the lightness or compactness of the soil, and the amount of strain to be resisted. The sketch shows two sets of these braces for a corner post. For single posts in line, and clothes-line posts having a strain in only one direction, a single pair of cross pieces is needed. These may be of plank, strong boards, or short pieces cut from rails or old posts, and flattened to fit the sides of the upright.

Latch for Barn Door on Hinges.

A wooden bolt, *a*, slides freely through the notch in *d*, and into a notch in the upright post behind the weather boarding which holds it. On the other end a short iron strap is screwed on firmly, with its



A BARN DOOR LATCH.

end held by a screw on which it turns, to the lever, *b*. This lever, *b*, is keyed with a nail or pin over *c*, which is the squared end of the handle, *h*, that comes through the board from the outside of the door. The latch, *a*, is drawn out of its socket hy seizing the lower end of *b* on the inside or turning *h* ou the outside. The wood for all will need to be tough; the size of the parts to be proportioned to the size of the door. W. S. S.

Early Amber in California.—Experiment.

The necessity of a drouth-enduring crop adapted to the soil, climate, etc., of central and southern California, has led to considerable experimental farming of varied degrees of success, including the introduction of Alfalfa, Egyptian Corn, aud other equally valuable crops. Probably nothing yet has so nearly filled the demand, with the small farmer at least, as the sorghum canes. Of these, the Early Amber aud the Black Top seem to be the most noteworthy, owing to their peculiar adaptability to the methods of cultivatiou here practised. Below are the precise figures on an experimental crop of two acres in Fresno county, the very centre of the State. The results are all given per acre, and while accurate, the expenses are much in excess of what are really necessary; and the amount realized is smaller than need be, owing to the inexperience of the planters, the use of defective machinery, and the small area worked. The seed was planted in May and harvested Nov. 1.

Irrigating water before planting		$1.00
Man to tend water half day		.75
Man with team and tools one day		2.50
Man planting seed, one day		1.50
Cost for planting		$ 5.75
Cutting and hauling	$ 2.50	
Rent of mill	2.00	
Man and horse, one day	2.00	
Man to superintend	2.50	
Wood used in boiling	1.75	
Casks for syrup	5.25	
Hauling to house	1.00	
Cost of manufacture		$17.00
Total cost		$22.75

The yield was one hundred gallons of good quality syrup, worthy seventy-five cents per gallon, or seventy-five dollars per acre, leaving a net profit of fifty-two dollars and twenty-five cents per acre, a pretty fair return on land valued at thirty dollars per acre. The crop was considered a fair one, and

although not receiving a drop of water from rain or irrigation after planting, the stalks averaged seven-and-a-half feet high, one and one-eighth inch diameter at the butt, and weighed something over two pounds each. No cultivation whatever was bestowed after planting, and no suckering done, and of course the yield of syrup was correspondingly low. It should be borne in mind, that full wages are allowed for all hands employed, while in fact the labor was all done by the farm men when other work was slack, and with comparatively no expense except for vessels to hold the product. This is not a fair test of the capabilities of this soil and climate as a sorghum producing region, for had the season been a favorable one, the raising and manufacture on a more extended scale, with better machinery used, and due care exercised in the selection of cane for crushing, the result would no doubt have been much more satisfactory.

The Culture of Figs in California.

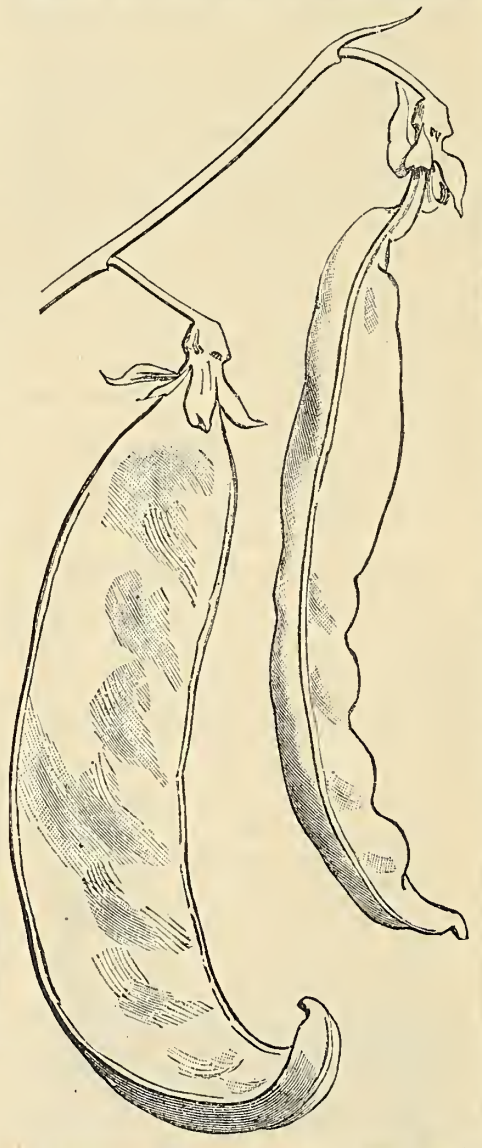
T. S. PRICE, SELMA, CAL.

When we read in 1879 that the importation of figs into the United States amounted to nearly half a million dollars annually, we were surprised that a country, the greater part of which is so well adapted to its culture, should act as consumer of a foreign article, when it might with profit meet all the demand for home consumption. While nearly all the southern and southwestern sections of the United States have the soil, climate, and other requirements for raising and maturing the fruit, it is doubtful if any other section has more nearly all the peculiarities for entire success than has the southern half of California. Probably in no other place will the effort of the horticulturist to produce figs be so liberally rewarded.

Several varieties of figs are cultivated here with considerable success, but the White Ischian and Dark Purple fig seem thus far to be the most profitable. Owing to the great interest in raisin and wine production the past few years, very little attention has been paid to figs, further than to supply the immediate wants of the culturist; however, within the past two years considerable interest has been manifested in the production of an article fit for shipment. The fig is propagated entirely from cuttings, which in suitable soil make a very thrifty growth. The soil in which it seems to thrive best is the black alluvial soil of the foot-hills, although it makes nearly as good a growth on the plains below. Very little pruning is necessary, in fact it is a mooted question whether it is of any advantage to prune, further than to prevent stool-sprouts; and in general, less attention is necessary to its well-being than must be given to other fruits. Experience has demonstrated the fact that the tree is more productive, and yields a better quality of fruit when allowed to branch near the ground, thereby shading the roots, and at the same time, being more convenient for gathering the fruit. Under favorable circumstances the fig often fruits here the same year of planting, while the second season frequently furnishes a fair yield; but the best results as to quality and quantity can only be hoped for after the eighth or tenth year. From some cause, whether from lack of proper fecundation or otherwise, the first crop is of little or no account, often falling before maturity. The second crop is the principal one, while the third is often of considerable consequence. The things particularly lacking to secure the fullest measure of success are easy and rapid methods of gathering the figs, and proper instruction as to the best methods of preparing them for market. So little has been done toward the preparation of an article of export, that those who might, have not informed themselves in that direction as they should have done. Some parties here have indeed "put up" some of the fruit in a very creditable shape, but the expense connected with the preparation has infringed greatly on the margin of profit. As a preserved fruit, the fig has certainly equaled our most sanguine expectations; as a dried fruit, the demand is a certain mark of its appreciation. The common method of drying as used by the farmer, is the same as that for sun-dried peaches. The product is usually hard and unpalatable when raw, but of excellent taste when cooked. Dried in the shade and on the ground, the taste is preserved to better advantage, but requires more care and expense. When the same care is exercised in their preparation as in Italy and in Spain, and when they become better known, our figs will hold a high place in the markets of the world. A tree of eight or ten years old should yield from four hundred to six hundred pounds of well-matured fruit annually.

The Eatable-Podded Peas.

There is a class of peas quite different from the kinds usually cultivated; the pods, instead of the tough, parchment-like lining, become tender and succulent, and when bent they snap suddenly like string beans, and they are used in the same manner. There are a dozen or more varieties in this class, but our seedsmen rarely offer more than two or three. They do not seem to be much cultivated in this country, though the few who try them esteem them highly. The pods are usually very large and irregularly curved, as shown in the engraving of



THE RAM'S-HORN "STRING PEAS" (NATURAL SIZE).

the "Ram's-Horn," a variety largely cultivated in France, a country in which these peas are much more generally esteemed than with us. As with common peas, there are dwarf and tall kinds, and they require no different cultivation from that given to other peas. When the pods are in proper condition, they will break with a clear fracture; if allowed to become too old, they will be tough and not desirable. They are by some called "Sugar Peas," "String Peas," and also "Skinless Peas."

"The Louisiana Purchase."

H. A. HAIGH.

Referring to the "Public Domain" article (p. 5, Jan.), Mr. B. F. Taber, Orange City, Fla., asks if the U. S. Government has perfected its title to the "Louisiana Purchase," by cancelling the "obligations" it assumed in addition to the $15,000,000 cash paid. As stated on p. 5, Louisiana then embraced all the present States of Louisiana, Arkansas, Missouri, Iowa, Nebraska, Kansas, Oregon, part of Alabama, Mississippi, and Minnesota, and the territories of Dakota, Montana, Idaho, Washington, and the Indian Territory south of Missouri. The "obligations" assumed by the United States were specially set forth and their payment definitely provided for in a Convention between the two powers, signed contemporaneously with the treaty (April 30, 1803), and virtually a part of it. They embraced only debts due or claimed to be due prior to that date, from France to citizens of the United States, for supplies, embargoes, and prizes at sea, etc. In brief, the United States merely took the place of the French Government in respect to certain previous claims, by our own citizens against it, the total amount not to exceed $3,750,000. They were to be paid on orders of the American Minister to France, based on determinations of a joint French and American Commission, with final approval of the French Minister of Finance; the payments to be made from the United States Treasury, with interest. Up to June 30, 1880, (Ex. Doc. 47: 46th Congress) $3,738,268.98 had been paid, which probably covered about all due. These could in no way affect the title to the lands, which passed the moment the treaty was ratified, (Oct. 19, 1803); and possession was formally surrendered by the French at the city of New Orleans, December 20, 1803, when the American flag was raised. The claims if not paid were no lien upon the land; their non-payment would only have been a breach of good faith by our own Government to its own citizens. Spain made certain claims upon some of the lands included in the "Louisiana Purchase," about the time of the negotiations; but the matter was amicably adjusted November 30, 1803, twenty days prior to our final possession, by a formal delivery of the Province of Louisiana from Spain to France; and the Spanish Secretary of State subsequently made a formal re-nouncement in behalf of the King, as "a new proof of his benevolence and friendship for the United States." Thus the claim of Spain, based on the discovery of De Soto in 1541, was, after nearly three hundred years, abandoned; and the great Valley of the Mississippi and the great Northwest, extending to the headwaters of the Missouri, and on to Puget Sound and the Pacific Ocean, was added to the United States. As a matter of interest it may be stated, that at the time of the Cession, Bonaparte said he only parted with the Province because compelled to do so by the many combinations against him, for he believed that "whatever Nation held the Valley of the Mississippi would eventually be the most powerful on earth"—a prediction already realized, or soon to be.

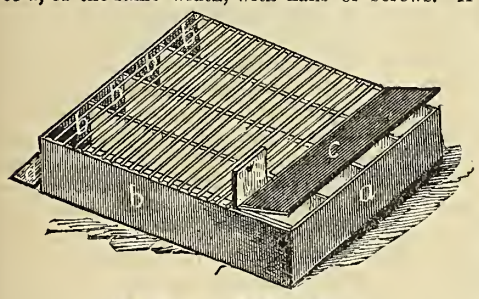
Saving the Road Wash.

Every road not on a dead level has more or less debris which has a fertilizing value washed off upon its side. The water itself is valuable, and will make grass wherever it spreads. In a hilly country or one of gentle grades, nearly all this water, and the fertilizing matter it carries, may be turned off at frequent intervals upon the adjoining pastures and meadows. The dust and debris of the highway consists of finely pulverized soil and stone, which contains more or less lime, potash, and other valuable material so minutely divided that water makes it immediately available for plant food. Iron and steel tires, horse and ox shoes, and above all the frost, have been at work upon it all through the winter. Appreciable quantities of manure have been dropped upon it by beasts of burden, and their feet have mixed it with the road dust, and made a nice compost. Its value is seen in the rank

growth of grass and briars wherever it lodges. It will pay big wages for all the labor needed to turn this wash off, through culverts or an open ditch, on to the adjoining pastures and mowing land.

Good Nests for Sitting Hens.

The hatching season is approaching, and it is well to be prepared in advance. The sketch herewith, is the most convenient and economical arrangement I have ever tried. A series of boards *b*, *b*, *b*, *b*, about four feet long, and thirteen or fourteen inches wide, are set on edge, fourteen inches apart, as many as nests are wanted, and fastened to *a*, of the same width, with nails or screws. A



NESTS FOR SITTING HENS.

fourteen-inch wide board, *c*, laid over, serves as a cover to the nests *n*, *n*. The other end has a board, *d*, to close it. Laths over the top confine the hens to the yards thus formed, which are nearly three feet long and fourteen inches wide. The partition boards, *b*, *b*, seclude the hens from each other, and perpendicular pieces *s*, in front of each nest, darken them. Sitting hens usually prefer quiet seclusion, and at least partial darkness. The yards give room for air and a little exercise, and at the far end of these fresh water, always accessible, should be renewed daily, with whole corn for feed. The cover, *c*, can be cut in short sections for convenience, if there are many nests. It may be inclined a little to shed rain. Removing the end screws and the lath, which need to be only slightly tacked on, the the whole material can be quickly packed away in small space, and put together in a few minutes another season. They may be set in the poultry house, or outside, according to the weather and season. Hens disposed to sit can be wonted to the boxes, by confining them in the nests with the boards *s*, on porcelain nest eggs for a day or two before giving the supply of eggs which are to be hatched out. H. C. B.

More About "Kill-Calf."—Honey.

In January last we gave Mrs. L. Blackman's description of the poisonous effects of a shrub which, on account of these, is called in some localities "Kill-Calf." As there stated, the shrub is *Leucothoë racemosa* of botanists, but does not appear to have had a common name until its bad character caused it to be known in parts of New Jersey as "Kill-Calf." The shrub is found from Massachusetts to the Gulf of Mexico, and as on account of its dangerous character it should be generally known, we gave with the article above referred to, an engraving of the leaves and flowers that will allow it to be recognized. We received a note recently from Mr. A. M. Williams, of Queens Co., N. Y., accusing the shrub of committing other crimes than that of killing calves. Mr. W. says: "Besides the fact that it is poisonous to calves, there is a stronger reason why the plant should be exterminated. The beautiful flowers of the shrub afford the bees a large amount of honey. This honey is very poisonous, and a little of it in a hive spoils all the honey it contains. There are many shrubs more beautiful than this, that are not objectionable, and instead of propagating and planting it for ornament, it should be regarded as a vile weed, and as a greater enemy than the Canada Thistle. In this section, the Kill-Calf is the worst enemy with which we have to contend, it being very difficult to exterminate, and it is hoped that no one will be so unwise as to plant it for ornament."

Teach the Boys to Use Tools.

EBEN E. REXFORD.

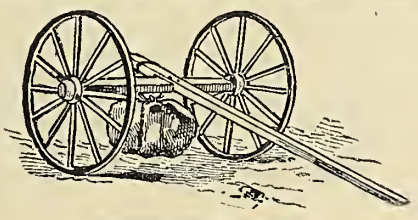
Last year a friend of mine, who has three boys, selected a Chest of Tools as a premium for collecting clubs for an agricultural paper, and surprised and delighted the lads with it. They went to work and fitted themselves up a workshop in the loft over the wagon-shed, and there they contrive to spend many an hour pleasantly and profitably. My friend said to me, "I am surprised to see how proficient the boys are becoming in the use of their tools. Why, they have made us many little articles for use about the house and barn, to more than pay for the cost of the tools, if I had bought them for cash, and if they keep on thus, a carpenter will be unneccessary here." This experience can be repeated in any family where there are boys, to the satisfaction and benefit of all concerned. Give the boys a chance to show what they can do. A set of tools will keep them busy on rainy days and odd spells, and out of mischief. Every success will encourage them in larger undertakings, and quite unconsciously they will develop a knowledge of mechanics which will be practical and useful to themselves and others all their lives, and almost every day, the year round, on the farm, about the house, anywhere, and everywhere. The cost of a set of tools good enough for them to experiment with, is small, and cannot be invested to better account. If you can not spare the money, encourage them to get up a club for a paper giving premium chests of tools. If they do not quite succeed, help by contributing a little cash for the difference. The investment will come back before you know it. Most farmers having more expensive tools, do not like to have boys use them for fear of possible damages, and they grow up almost entirely ignorant of saw, and plane, and chisel. Let them have tools of their own, and show them how to take proper care of them. Teach them all you know about them, and set them at little easy jobs. When they do these well, let them know their work is appreciated, and they will become ambitious to do still better work, and take pride in it; so will you, when you come to see that that they are able to do what you have heretofore depended on outside labor for. One of the most convenient things about the house or farm, is a man who can use tools.

Novel Way of Getting Winter Eggs.

A. H. Kepley, Effingham, Ill., writes us: A retired country merchant, in telling us of his experiences thirty and forty years ago, gave this incident worth repeating: One of his customers brought in a full basket of eggs every week all through winter, when few came from any others. On inquiring, it was found that he had warm quarters for his poultry right over the pig pen, which was only high enough for the tallest hog to stand in. The warm air rising from the swine through the crevices, kept the hens so comfortable that they continued laying right on in the coldest weather. Perhaps also the near presence of the pigs may have scared away the night prowling marauders.

Moving Heavy Stones—Lifting Posts.

As the best farm wagons are intended to be, and should be, abundantly strong to support four or

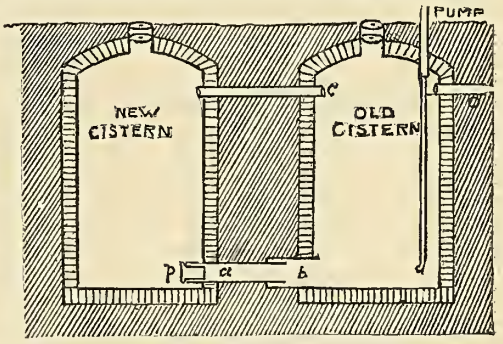


MOVING HEAVY STONES.

five tons, the hind axle can carry half of this when distributed along its length; and a ton's weight may be suspended from its middle point. The wheels will of course bear this if the tires be broad enough for the ground. If narrow tired they would sink into moderately soft soil, like prairie land for example. If the reach is fairly strong, it may be used as a lever for lifting heavy stones as shown in the engraving, and the detached hind axle and wheels used to transport the stone to any point desired. It needs lifting only far enough to just clear the ground.—Mr. Jno. Wagner, of Grant Co., Wis., suggests using the wagon reach in a similar way for lifting fence posts out of the ground when wishing to move them. Another correspondent proposes the same arrangement as a "stump-puller," but with the exception of some of the immense wagons sometimes provided for transporting ship timber and the like, the vehicle would not be strong enough, or the leverage great enough to lift out any stumps that could not be pried out with a long crowbar or a large pole used as a lever.

Connecting an Old and New Cistern.

Mr. B. C. Guerin, of Morristown, N. J., sends us a sketch and description of a method that will occasionally be found convenient, when it is desired to connect a new cistern with an old one without loss



CONNECTING TWO CISTERNS.

of water. Whatever the distance apart, provide a two-inch iron pipe, *a*, long enough to extend from the inside of the new well to the outside of the old one, and fit upon the right end of it by screw thread the pipe, *b*, long enough to extend well through the old wall. Build *a* into the new well and close its left end with a wooden plug, *p*. When ready, pump or syphon the water from the old to the new cistern. Then open the old wall, screw *b* on to *a* and cement around *b*. When ready, with a rod or bar, knock out the plug which will float to the top, and the water will stand at a level in both cisterns. A connecting five or six-inch glazed ware or iron pipe, *c*, should be put in on a level with the overflow pipe, *o*. One pump and one over-flow pipe answer for both cisterns.

Volunteer Distribution of Seeds and Cions.

Much may be done for the improvement of horticulture by the volunteer distribution of seeds and cions, either with or without the aid of associations. Horticultural societies succeed, as a rule, only in the cities and large towns, and farmer's clubs are the exception even in thrifty agricultural towns. But almost any enterprising farmer can do a great work for improvement in his own town or parish, by the distribution of seeds and cions he has procured and tested. He starts with the idea of providing for himself and family the best fruits and vegetables his soil and climate will produce, and disposing of the balance at the best market town within reach. From the papers he learns at small cost what are the best varieties of sweet corn, squashes, melons, and cucumbers; he procures and raises them, and exhibits them at the county fair. He is satisfied that he has a good thing, for instance in the Early Marblehead sweet corn, which gives him this vegetable several days earlier than anything else in the market, and two or three weeks earlier than the common kind grown in his vicinity. It would be no great tax upon his purse or his time, to leave one or two hundred well-ripened selected ears at the post-

office or grocery, to be supplied, an ear each, to those getting their letters or groceries. The average post-master or grocer, in a farming community, would gladly distribute seeds, cions, and plants, without compensation, to help in a good work. There are centers in almost every agricultural town where people gather for business and trade, where each family cultivating a garden, could be furnished with the choicest varieties of fruits and vegetables. This would in no way interfere with the sales of the seedsmen and nurserymen, but rather increase the demand. The best districts for their business are where the taste for good gardening is already established, and every man is experimenting, and adding to the valuable things already possessed. The great difficulty in any community in improving horticulture is to get a few neighbors to make their first investment in improved varieties. When one has planted his first Bartlett pear tree, his first Delaware or Concord grape, his first improved strawberry or raspberry, and eaten the fruit, there is no man more ready to invest in seeds and plants. Seeing is believing. Eighty years ago or more there was a clergyman settled in one of the feeble country parishes of Connecticut, whose horticultural tastes were as sound as his views in theology. He preached good gardening six days in the week, by example as well as precept, cultivated fine apples, pears, and grapes, made his home an oasis in the wilderness, and distributed seeds, cions, and plants with a liberal hand. Great improvement in the horticulture of the whole town resulted, and the impress of his ministry in the pulpit and the garden is still visible there in almost every home. This ministry in horticulture is within reach of almost every farmer, and is one of the easiest and most effective ways of doing good. It has an important bearing upon morals and the right training of the rising generation. Stomachs fed with the milk and honey of fine gardens, are not so likely to crave alcohol and tobacco. The distribution of seeds and plants is in order now. CONNECTICUT.

A Useful Hand-Light.

Among the many helps found useful or necessary by the European gardener, is the hand-light and the bell-glass, the latter the *cloche* of the French. One sees in the market-gardens around Paris *cloches* by the acre. They are bell-shaped, about fifteen inches high, and the same in width across the mouth, and are now made without a knob for a handle at the top. These are used for covering seeds, cuttings, etc., but especially in growing lettuce and cauliflowers, for both of which they are employed on a large scale. Our market gardeners could not use these with profit, as steamboats and railroads can place the produce of southern gardens in the market cheaper than they can raise it under such glasses. The amateur gardener will often find a hand-light of some kind

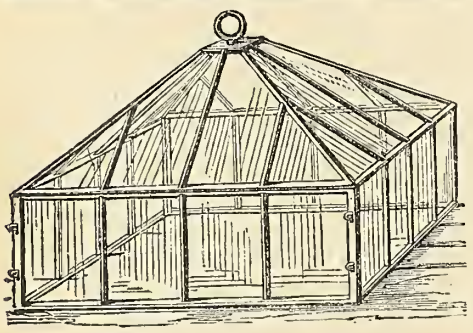


Fig. 1.—A STORE HAND-LIGHT.

convenient to protect tender plants, etc. Fig. 1 shows the kind usually sold; it is costly, easily broken, and difficult to repair. We have suggested as a substitute a grocery box of convenient size, removing top and bottom and covering the top with light cotton sheeting; or a frame may be nailed together of six or eight-inch boards, and covered in the same manner. When more light than the cloth will admit is needed, a similar frame may be covered with a pane of glass. Such frames are a great aid in forwarding and protecting young melon, cucumber, and other vines, and in a private garden are worth the trouble of making them. The objection to all such hastily made substitutes is, they are not cared for, and, when wanted for use a second time, are often not to be found. It is well to have a few well-made hand-lights to meet sudden requirements, as they may be stored away and be ready when needed. Fig. 2 represents a form that we have found convenient, and it will be well to have them of at least

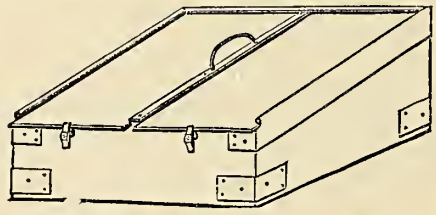


Fig. 2.—HOME-MADE HAND-LIGHT.

two sizes, using for some a single pane more nearly square. The engraving requires no description. If strengthened by hoop-iron straps at the corners, and painted, or treated to a few coats of crude petroleum, these protectors will last many years.

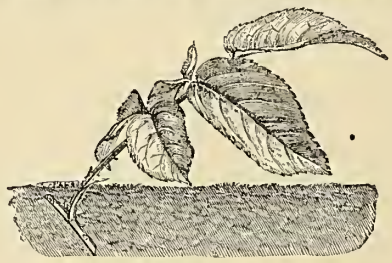
Plantain and Other Weeds.

Among the questions most frequently asked us, are those relating to the destruction of weeds of different kinds. A subscriber at New Lisbon, N. Y., asks: "What will kill Plantain? We have a lot of ten acres covered with it, and threatens to run out everything else."—This is an illustration of a majority of the inquiries, they ask, "What will kill," instead of "How can I kill" this or that weed. There is a general impression that something may be applied to the soil, so discriminating, that it will destroy the weeds, and leave the plants of the crop unharmed. Though we have many times shown that this is impossible, the idea still prevails. Nothing can be put upon the land that will of itself destroy weeds, and let the other plants alone. The only manner in which any application can kill weeds is, by stimulating the growth of the crop to such a degree that it will crowd out and smother them. Weeds come into our lands in various ways. We sow them, they are brought in by ourselves and our animals, and they are brought by the winds. By far the most frequent method is, by unintentional sowing. Weeds are taken to the manure heap or the pig-pen, where they ripen their seeds before they decay, and when the manure is applied to the land, that is manured and at the same time seeded for an abundant crop; seeds of weeds are also sown with other seeds, especially those of grasses and clover. Every farmer should be familiar with the appearance of these seeds, and if on examination of a small sample, better with a microscope or magnifier, any other seeds are seen, do not sow them. Several seeds have hooks by which they cling to the coats of animals, and to our own clothing, and many weeds may be introduced upon the farm in this manner. Winds and streams convey the seeds of weeds, though not so frequently as some suppose. All the other causes together, introduce fewer than the farmer himself, by his indifference to the quality of his seeds and his manure.

As to destroying the weeds after they are once on the farm—there are weeds and weeds, and a knowledge of their nature will be a great aid in the warfare against them. Like other plants, they are annual, biennial, or perennial. Annual weeds come up, and die the first season, and that is the end of them. But before they depart, they make abundant provision for a succession, by producing a multitude of seeds to carry on the work. The earlier such weeds are destroyed, the better, as some perfect their seeds when quite small. The cultivation of crops that must be frequently worked by hand or horse implements, is the most ready way of getting rid of them. Biennial and perennial weeds the first year from sowing, prepare to produce seeds the next year, and are usually not conspicuous the first season, there being only a tuft of leaves lying close to the ground, looking innocent, but preparing for mischief, by laying in provisions for an active growth the next year. The biennial, the second year, shoots up a flower-stalk, perfects its seeds, and dies. The perennial shoots up a flower stalk, perfects its seeds and don't die, but on the contrary lays up in its roots provisions for a more active campaign the third year, and so on continuously. When such weeds are established, their spread should be prevented by cutting off their seed-stalks, or rather flower-stalks, before seeds are formed. If the flower-stalks of a biennial weed are cut away, the plant will die sooner or later, and give no further trouble. Not so the perennial weeds, the measures for their extermination must differ with the nature of the plants and their numbers. In some cases, pulling or digging up the roots will be cheapest; in others, the constant cutting of the leaves as soon and as often as they appear at the surface of the ground, will answer. Again, it may be best to smother the weeds with a heavy growth of Buckwheat, or the Southern Cow Pea. This last makes a remarkably dense mat of vines and foliage, under which nothing can live. We have thus indicated the general methods to be followed in the destruction of weeds. Those persons will be most successful in applying them who acquaint themselves with the plants known as weeds, and are able to recognize them at every stage, and who consider their habit of growth in undertaking their destruction. Every farmer should recollect that a sharp hoe properly applied to any weed in its youth, will avoid much trouble in future.

How Roses Are Produced Cheaply.

Some of our amateur friends, who make cuttings of several joints when they propagate roses, wonder how florists can turn out roses so rapidly and at such a low price. The large establishments which make a specialty of roses or any other plants, are regular factories, with everything arranged for the end in view. The roses to furnish the cuttings are potted the fall before and kept in a cool greenhouse or pit until the time they must be started into growth to furnish shoots from which to make cuttings. Instead of taking these several inches long, the stem is cut into pieces with a single leaf



A ROSE CUTTING.

each. The leaf has a bud in its axil, and is planted in the sand of the cutting bench as shown in the engraving. The cuttings are made from tender shoots, but sufficiently mature to have formed buds in the axils of the leaves. Of course the temperature of both the sand and the air of the house must be properly controlled to produce the best results. Amateurs, who need at most a few dozen roses, will not expect to raise them in this manner. Even if they have a propagating house it would be vastly cheaper to buy the few plants needed than to give the necessary care and attention, which would be nearly as much for a few dozens as for several thousands. The "saucer method," described last month, p. 99, comes to the help of the amateur. We have not tried it for roses from very young shoots, but from our success with other shrubs in rooting them from very green wood, we have little doubt of its success. Observe that the sand is to be made as wet as mud, and kept so. Drying out will destroy the roots. The cuttings should be from the green shoots pushed by the window plants, as soon as buds are formed—not flower buds, but the leaf-buds, those which when

they start will push other shoots, and are found at the angle where leaf-stalk and stem join. As soon as roots, even small ones, appear on the cuttings, they should be potted out in good, fine soil.

Potato and Seed Tubes.

F. GRUNDY.

To enable one to drop potatoes in planting just where they are wanted without having to stoop down, the writer devised the simple apparatus

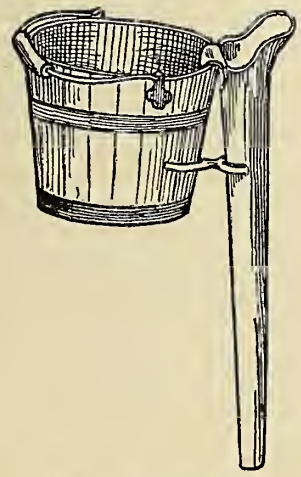


Fig. 1.—POTATO TUBE.

shown in figure 1. It is merely a tin tube to hang upon the edge of a pail. The hooks go well down into it to give a good grip. It is an excellent aid in sowing chemical fertilizers along the row.—Some potato planters carry the sets in a sack, over the shoulder and under the arm, with an opening in front, as in sowing small grain. In this case the pail is not used but a handle is attached to the tube. Carry it in one hand and drop the sets through it with the other.—Figure 2 is a similar but smaller tube permanently fastened to a two-quart tin cup, for sowing small seeds, the sower standing nearly erect and dropping the seed where wanted, regardless of wind or weather. It is a simple and cheap affair, but the gardener who once uses it will ever after consider it indispensable.



Fig. 2.—A SEED TUBE.

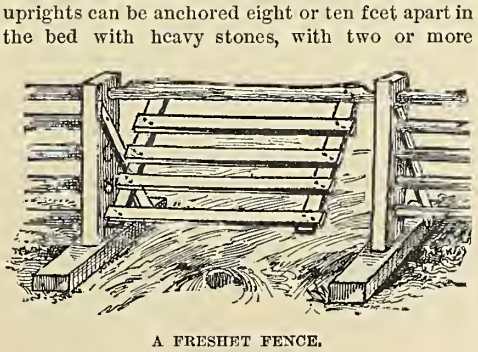
Strawberries on the Farm.

Farmers and their families should have an abundance of the best the earth produces, but they too often content themselves with meagre fare, and regard as luxuries those things which others, far less able to have them, look upon as matters of course. Generally if there are strawberries on the farmer's table, children have hunted them in the fields (and there can be none better as to quality); they are so hard to find and slow to pick that their visits are not repeated many times during the season. These many years we have insisted that the farmer's family should have strawberries and plenty of them; not a few times in the season, but three times a day every day, and so many that the saucers can be refilled again and again, until each one has had enough. This is easily possible if one really wishes to accomplish it. We have in former years shown how a patch may be planted and cared for with little trouble. If one has an abundance of plants the rest is very easy. Still, however desirable it may be to have a large strawberry patch, it may not be convenient to expend the few dollars needed to buy plants to fill it. If plants can not well be purchased to set out a large bed now, they can be raised for setting a bed next fall or spring, and it is the object of this present article to show how this may be done. Of course there must be strawberry plants to start with, and unless a neighbor who has an established bed can afford a few, they must be bought. The outlay need not be large; the leading dealers vary in their prices, but the average charge is thirty cents a dozen for standard varieties, delivered by mail. A dozen plants, properly treated, will during the season furnish enough young plants to stock a large bed. If there is no nursery in the vicinity order the plants, if only a dozen, at once, to be sent by mail.

The catalogues are confusing with their many varieties, old and new. For home use, no new or untried kinds are worth taking as a gift; what we want is fruit and plenty of it. Charles Downing, Bidwell, and Sharpless are among the reliable kinds that have been tested and may be planted with confidence. Having ordered the plants, prepare a place for them. The size of the bed will of course depend upon the number of plants, which are to be two feet apart each way from one another, and two feet from the margins of the bed. Make the soil rich with old, decomposed manure and ashes, to be worked in as deep as possible by spading. When the plants come, their roots should be shortened or cut back to two-thirds or one-half their former length, and all the dead leaves removed. In planting, open a wide hole with the hand, and spreading the roots in all directions, separating those that are matted, carefully work the earth in among them, and having covered them with earth press it firmly over them. The plants will soon start into growth, and new leaves open. It is probable that clusters of flower buds will appear in the center of some of the plants; if so, pinch them off as soon as they are seen, as we now wish to raise plants and not fruit. As the season advances, runners will be formed, and at length a bud will appear upon the end of each and finally take root. If the runners do not become fixed readily—as they are often blown about by the winds—place a clod of earth upon them to hold them fast. After the plant from the first bud has grown to some size, that will throw out runners, and so on, all the season. The object being to raise as many plants as possible, the runners should be watched, and not allowed to interfere with one another, but distributed evenly over the bed. If necessary water the bed, and pull up by hand all weeds that appear.

Fences Across Freshet Streams.

When fences extend across brooks subject to freshets that bring down brushwood or other material liable to lodge, a section or two may be constructed to swing down stream, as in the engraving and to be ordinarily held in place by stakes, or by tying at one or both ends. The width, strength and size of the bases supporting the side posts, and of the braces, will depend upon the width and depth of the channel. The base pieces can be firmly anchored by stakes driven slanting over the ends and outsides, or by stones piled on. For wide, shallow streams, three or even more braced uprights can be anchored eight or ten feet apart in the bed with heavy stones, with two or more

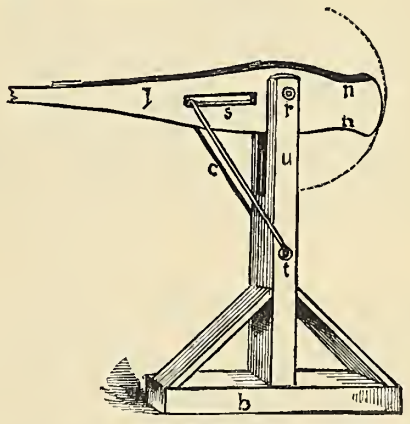


A FRESHET FENCE.

swinging sections. If small trees or long timbers are likely to float down, the swinging gate may be twelve or fifteen feet wide. For smaller streams, with strong high banks, five or six feet will suffice.

An Improved Wagon Jack.

Mr. D. E. Stevens, Hedgewood, Kans., referring to the two jacks in *American Agriculturist* for August last, sends us a description of one he has used with great satisfaction. It is home-made, requiring only an iron clevis to be quickly formed by a blacksmith. As seen in the engraving, by turning the lever over to the right or to the left, it is adapted to fore or hind axle, or those of different hights. The following convenient dimensions will enable any one to construct it. The upright *u* is a two by four scantling twenty-two inches long, spiked on a base of plank, *b*, sixteen inches long and four inches wide, with side braces of inch boards, or iron rods, if at hand. Half-inch holes are bored through one at *r*, two inches from the top, and one at *t*, twelve inches below *u*. A slot one and a half inch wide, is cut down from the top through the middle, fifteen inches deep, in which the lever *l* moves and turns its larger end.—This lever is cut from a hard-wood plank one and a quarter inch thick, four feet long, and seven inches wide at the upright, and tapering out to three inches or so wide. At seven inches from its large end and two



A WAGON JACK.

and a half inches from one side, a hole is made through it for the insertion of the bolt at *r*, which is to be headed down flat so as to allow the clevis to turn over and past it. A slot, *s*, is cut through it, three-quarters of an inch wide and nine inches long, beginning two inches from the hole at *r*. The larger end is hollowed out a little at *n*, *n*, to catch on to the axle.—The clevis *c* is a half-inch iron rod bent to four and a half inches in the clear, with holes for the insertion of bolt at *t*. This is fifteen inches long; one end is slipped through the slot *s*, and the two ends brought round and bolted at *t*, to turn on the bolt, which may have a head and nut or key to hold it in. At the end of the slot, *s*, one or more notches can be cut for the bow end of the clevis to drop into and lock the lever when the wheel is raised.

Getting Out of the Ruts.

There is some foundation for the reputation farmers have of running their business in ruts. Routine is a good thing in its place, but divergence has its advantages. All improvements are made by those who get out of the beaten track, and try new crops, new fertilizers, new stock and tools, and new methods. Every farmer should study the new things set forth in the agricultural papers, and at the farmers' clubs, and other agricultural gatherings. He will find chaff among the wheat no doubt, but the sifting process cultivates a habit of thinking, and adds to his knowledge every year. It is important to have half an acre or more devoted to experiments in fertilizers, in new vegetables and fruits, in draining and subsoiling, in shallow and deep manuring. A hint in your paper is one thing; a test in the soil, under your own supervision, is quite another. It is barren upon the printed page; but when committed to the soil it may fructify and bear fruit, some thirty, some sixty, and some an hundred fold.

Hillside Cattle Barn.

SECOND PRIZE.—BY J. F. WHEAT, CROTON, DEL. CO., N. Y.

The barn, shown in figures 1 to 7, is planned especially for a dairy farm, but can be readily adapted to other live stock by an appropriate arrangement of the divisions on the cattle floor. It is provided for a side-hill situation, of which there

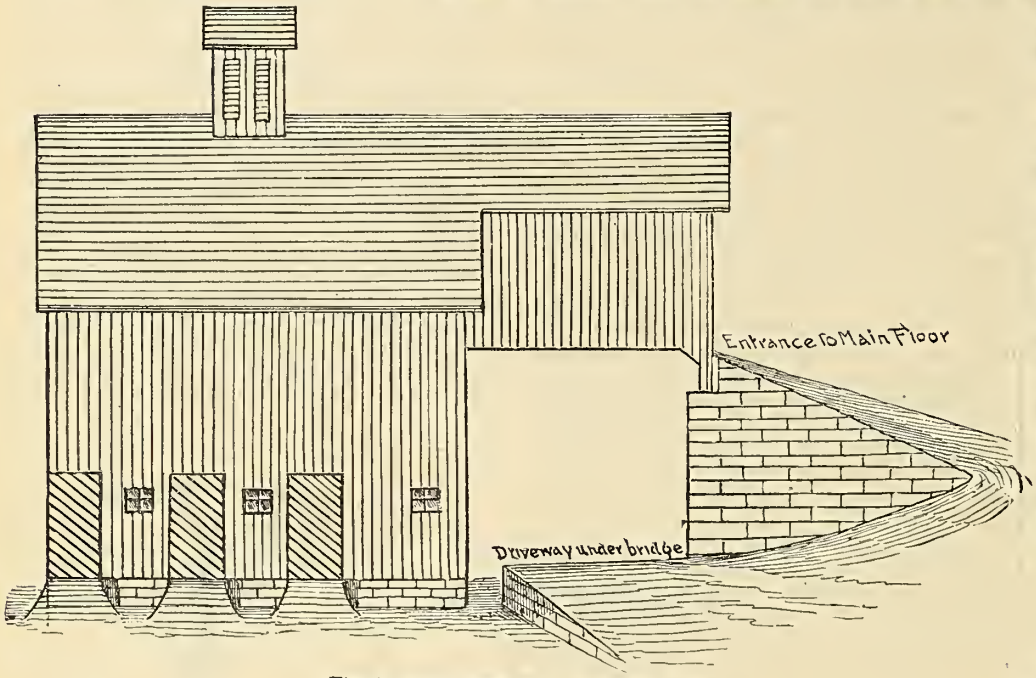


Fig. 1.—SIDE VIEW OF A HILLSIDE BARN.

are multitudes of good ones in this and other parts of the country. The side view, fig. 1, in connection with the other figures, will show its general construction. The main building is fifty feet square, with a covered extension of the main upper floor or bridge, twenty feet to the roadway, which has supporting side walls of stone, dressed or undressed as may be convenient. This arrangement allows hay and grain to be hauled from the higher ground directly into the main floor at the very top of the building, so that all unloading and moving of the material is downward, until it reaches the manure pit, thus saving lifting. Under the bridge is another driveway, the side next the barn sustained by a stone wall, parallel to and four feet from it, leaving a passage-way for animals into the basement.....Figure 2 is an outside or elevation

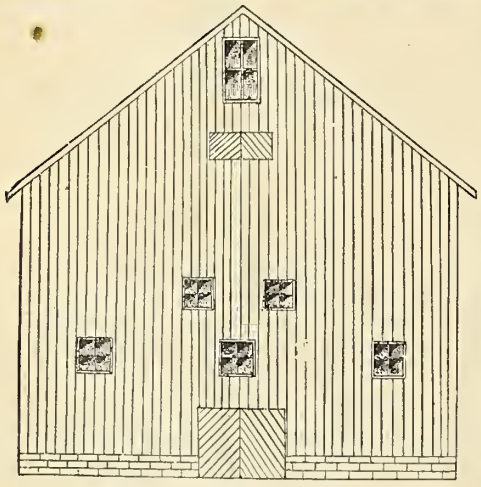


Fig. 2.—LOWER END OF BARN.

view of the end on the lower side, opposite the main entrance....Figure 3 shows the framing or timbers of that end, and the position of the main drive floor, and other parts....Figure 4 is the main drive floor; *a*, *a*, are shutes, the side of each next the hay being short boards set in loosely as the bays are filled, and removed piece by piece as they are emptied, so that there is no lifting of hay up into the shutes. *B*, a good-width stair to the floor below....Figure 5 is the middle or granary and feed floor; its position is indicated in fig. 3. A platform extends from this floor, four feet out to the lower driveway for loading and unloading grain, bringing in implements, etc., etc. So much of this floor as is needed is devoted to grain and feed bins; and the rest to storing farm machinery, implements, sleds and sleighs, and may be used for corn, fodder, etc. *A*, *a* are the continuation downward of the shutes; *b*, stairs and floor above (same as *b*, fig. 4); *c*, stairs to floor below; *d*, door to bins; *e*, *e*, *e*, bins, and *f*, passage-way between them.—It is convenient to have a spout to bring grain from the threshing floor down to these bins, and other spouts to convey ground feed, etc., from the bins to the feeding alley or the cattle floor below....Figure 6 is the cattle floor (marked basement in fig. 3) which is arranged for thirty cows, three feet being allowed to each cow, but by utilizing part of the space given to calf pens, etc., the floor may accommodate forty cows, for which there is ample room in the barn to store sufficient feed, all under one roof, to take them through the severest winter. Hight of ceilings eight feet. It will be noted that the alley, mangers, etc., of this floor run across the building, the windows, *w*, *w*, *w*, in the lower side of the engraving being those of the lower row on fig. 2, and the doors on the right side the same as those shown in fig. 1. The calf stable is for calves the first winter, and will hold six head. The calf pens are for very young calves. The stall with manger is for a bull. The feeding alley is ten feet wide; it has shutes overhead, through which hay comes down from the mows. Other spouts, not shown, come from the bins above. The feeding mangers are two feet wide. The platforms are four and a half feet for medium-sized cows, and two inches wider for larger ones; it is well to have this width vary and place the larger cows on the wider portions. The gutters are eighteen inches wide, four inches deep at the ends and in the center, and six inches at the drainage holes, giving an incline to carry off the urine. The manure is passed to the cellar through *m*, *m*, *m*, *m*, (to *m*, *m*, *m*, fig. 7). The walks behind the cows are four feet wide. The small *x*'s show the places of the posts, which it will be noticed are planned to be out of the way, those in the stalls passing between the cows. Gates *g*, *g*, *g*, three and a half feet high, serve for partitions as well. The doors and windows, *d*, *d*, and *w*, *w*, admit plenty of light and air for ventilation in summer, and the whole arrangement allows of "soiling" cattle where this is practised.—For fastening cows I prefer a chain or rope around the neck fastened to a large ring sliding up and down on an upright round post....Figure 7 shows the sub-basement, its entrance being at the lower end, as shown by the large doors in fig. 2. This is only twenty-four feet wide and thirty-two feet long. The entrance is at least ten feet wide, with two hinged doors, or one sliding one. The drive-way is inclined downward from the entrauce, the manure carts being backed in for loading. *M*, *m*, *m*, *m* show the manure as dropped through from *m*, *m*, in fig. 6; it is of course spread out along the sides and at the rear as it accumulates. The posts, *p*, *p*, are on firm, solid bases to support the weight above, as these or their continuation extend up to the roof. Windows, *w*, *w*, in the walls or underpining supply air currents through the cellar. This manure cellar, to which some object, I consider one of the best features of such a barn, after a dozen years of experience. I would much sooner risk cattle over them than without them, for the reason that they can be kept cleaned out in summer and have currents of pure air constantly flowing through, while the ordinary stable floors are seldom water tight, but more or less of the liquid manure leaks through, and accumulates for years, gathering in sickening pools, and sending up anything but healthful effluvia....Except where the cost of excavating is very great, in rock and hard pan, this building can be erected for from two thousand to two thousand five hundred dollars, covered with matched pine boards, painted outside two coats, and finished inside in good shape. The cost will depend upon location, price of material, whether timber and lumber is supplied on the farm, etc.

Large Poultry Yard.

H. Miltman, of Lower Saucon, Northampton Co., Pa., writes us: I intend to begin poultry keeping as a business and would like to have a plan for a poultry house, combining all the best features that experience has suggested. The place I have selected for my poultry yard is a dry strip of meadow, containing about two acres, of which I shall take as much as required. The ground slopes away from a mill-race bordering its upper side, and can be very rapidly drained if necessary. I consider the mill-race an admirable place for ducks and geese, and also as a source of water for the hens. Is my ground suitable? What is the best breed of fowls for market, poultry, and for eggs?

You will find numerous exeellent plans in back numbers of the *American Agriculturist*.—The land must be well drained. Open ditches will answer perfectly. Probably the Plymouth Rock cross will

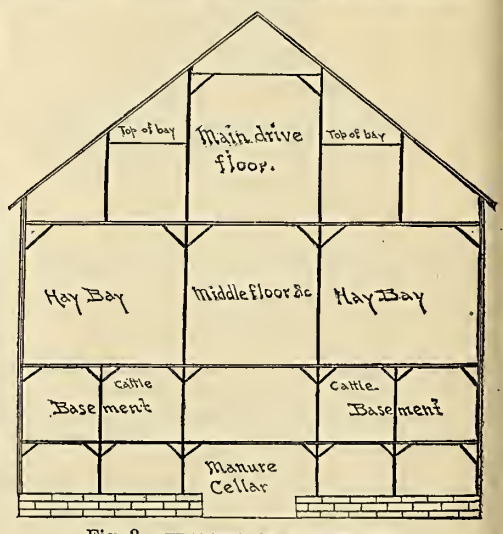


Fig. 3.—FRAMING OF LOWER END.

prove as valuable a first cross as any for common hens. Next year, or the second year, take another cross, selecting it from either the laying breeds like the Leghorns, or the flesh-producing breeds like the Dorkings or Asiatics. Ducks may be successfully raised with very little water for swimming. The main points in poultry raising are: clean nests and roosts, an abundance of wholesome food, and a plenty of pure drinking water.

Lightning and Lightning Rods.

ORANGE JUDD.

Spring has come and "the voice of the lightning rod man will he again heard in the land," as he goes up and down among farmers, seeking whom he may devour. In antumn, when muttering thunders retire southward with the sweet-volced songsters, the lightniug "regulator"

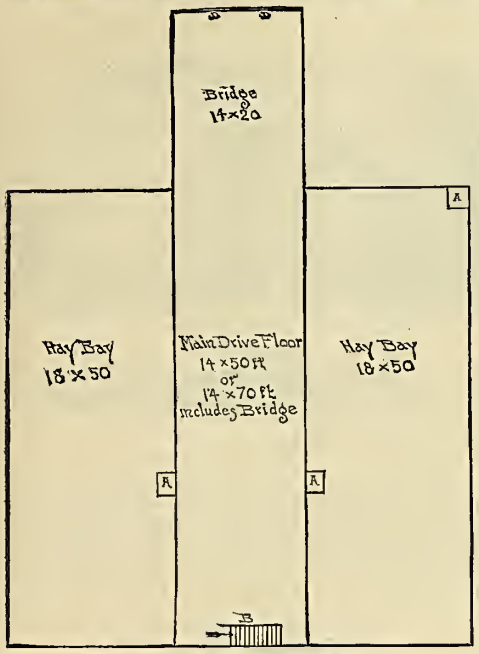


Fig. 4.—THE MAIN DRIVE FLOOR.

calls in his forces, his traps, his wagons and horses, disposing of the latter, or putting them out to hoard for the winter if the state of the market does not favor a sale. Bnt as soon as the zigzag streams of light dart athwart the spring clouds, and awaken the fears of the nervous, he, like the circns man, gathers his retinue and takes possession of the field of operations decided upon the previons year, or selected during the winter's leisnre, with his vocahulary re-enforced by some new arguments and his wagon with one or more newfangled "points," "angles," "insulators," "rods," "joints," etcetera.

Lightnlng as seen, is the light produced by the swift passage of electricity through the air from cloud to cloud, or from the clonds to the earth, or the earth to the clouds, or both. Its velocity is almost inconceivahle, equal to going seven times around the world between two tlcks of a three-foot clock pendulnm; or, say abont five hundred times faster than a ball flies as it leaves a heavily-loaded rifle.—The air does not conduct electricity through it, hut it forces its way along, driving the air particles together, and, so to speak, squeezing the heat

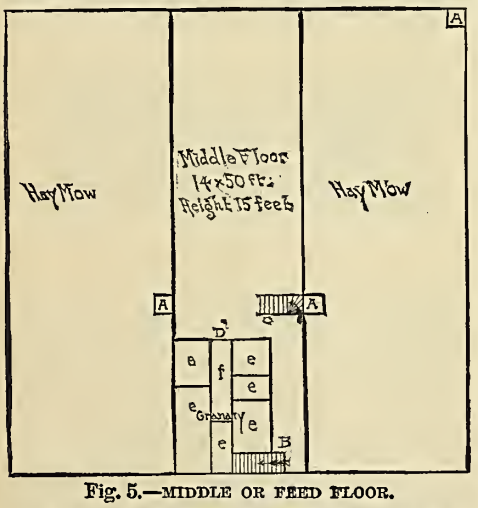


Fig. 5.—MIDDLE OR FEED FLOOR.

out. If we pnsh a tightly-fitting rod down a gun harrel, crowding the air suddenly into a small space, the air will give out so mnch heat as to become red hot and set fire to a piece of tinder in the hottom. So we may snppose the swift lightning pushes the air together hefore it nntil it hecomes hrilliantly red-hot (lightning,) and when mnch air is compressed hefore it, it darts off until more air is compressed in the new line and then it shoots another way, and thus we have its zigzag course. This driving and beating the air produces the sound we call thunder. We get sound hy agitating the air when beating a drum-head, or vibrating the strings of an instrument, hy exploding powder in it, etc. The more violent agitation by the swift lightning produces the loud thunder, though a lightning stream of electricity is so small at any one point that it shakes the air less than a heavy cannon charge of powder. (Thunder is seldom heard ten miles, while a battle has heen heard forty miles or more). The rolling of thunder is caused by sounds coming in from different distances one after another, as the electricity darts from cloud to cloud, farther or nearer from us, a thunder sonnd being produced between each pair of clouds. It is as if a score or more of cannon, each a little further off, were all fired at the same moment; we would have hy the reports coming one after the other a rolling sonnd just like thunder.

Light comes almost instantaneonsly from a dlstant point, while sound takes nearly five seconds to come a mile throngh the air. If we see the flash of a cannon and begin counting one, two, three, only as fast as a three-foot pendulum ticks, ahout the time we count five the sound of the cannon will arrive. After a sharp flash of lightning connt as above, and the real lightning cloud is as many fifths of a mile away as you count seconds. If you count four or more, you may know that that lightning cloud is at a safe distance. If coming towards you, the thunder will morc quickly follow the lightning; if going from you you will count more at each successive flash; if counting about the same number, it is going by. Understanding this will help quiet nervous people.

While electricity is not conducted by air, but jumps across, or through air spaces, producing lightning and thunder, it will go quietly along or through the metals, passing from one particle to another. A quantity of electricity that would rend the air, produce blinding lightning and deafening thunder, would run through or along a copper rod no larger than your finger so quietly that yon would not perceive it. It would do the same on an iron rod a little larger. Iron is a good conductor of electricity, and copper and pure silver are still better. A tube filled with water, if large enough, would conduct the electricity, and so would a rod of wood if its pores were full of water; moist flesh will do the same, but not nearly so well as the metal. The electricity would not go through a glass rod at all, nor through a wax one, nor through a dry stick, or feathers. Remember that there are good conductors, as silver, copper, iron, etc.; poor ones like wet wood, the hodies of animals, cotton, etc., and non-conductors like glass, wax, and very dry wood. This will enahle us to understand lightning rods further on.

The condensation of vapors in forming clouds develnpes a good deal of elcctricity. The clouds float on the non-conducting air, and the excess of electricity cannot get away. Another cloud coming near, having less electricity, some of the excess jumps across the intervening air space, producing lightning and thunder as it forces itself through the resisting air. But now suppose the over-charged clond gets near the earth. Some of the excess of electricity will strike off to the ground tearing its way down straight through the air, or zigzag if the distance be far. This cloud heing thus relieved, other over-charged clouds in the vicinity may send over to it their excess, and there will he sundry lightniugs, though nsually they all join in sending the one grand charge to the earth, and there is quiet nntil more electricity accumulates.* In a continuous raln, enough electricity runs down the rain-charged air to stop heavy discharges.

Now suppose one of these clouds passing over ns has a good deal of extra electricity, but not quite enough to strike throngh the whole air between it and the earth. But it comes in the neighhorhood of a tree containing sap-moisture which is a moderately good conductor. That helps hridge the distance to the earth. The electricity strikes into the sap and follows it down. If the clond in small the charge may find roadway enough to get through quietly to the ground. If there are many trees, as in a forest, they will together supply sufficient roadway to the earth. Lightning seldom strikes trees in a forest, nnless one is much higher than the rest and reaches up to a high clond. But if the tree stands alone and there is more electricity than can go along its sap easily, it will split and rend the tree in going through it. So it is never safe to go nnder a lone trce in a thunderstorm. If there was a small metal rod down through the tree the effect would he similar. If on outside of the tree, and large enough, all electricity wonld run down the rod.

Note this especially: If the iron rod has a sharp point at the top, the electricity will spin off in a continuous little stream, so to speak, and unobserved. If the top is a round hall or a blunt end, a large lot of the electricity will jump from the cloud to it in a mass, with a report as lond as a pop-gun, a pistol, or a cannon, according to the amount, and if a very heavy charge, more than the rod can carry, it may melt it, and some of it may strike off to the moist wood of the tree, and perhaps rend that.

Note this also. Anything hetween the charged cloud and the earth, that helps to shorten the distance, will help to a discharge of the electricity that might otherwise have floated hy. A man's moist hody may he just enough to enahle the electrical discharge to get from the cloud to the earth through the resisting air. A gun-harrel will help a good deal more. Even an umhrella, with its metal rods and top, may he enough; so may a pitch-fork in his hand, or scythe on his shoulder. The electricity will take to his moist, poor conducting body in preference to the air, and if the discharge is large, the fluids of his body will only carry part of it and he

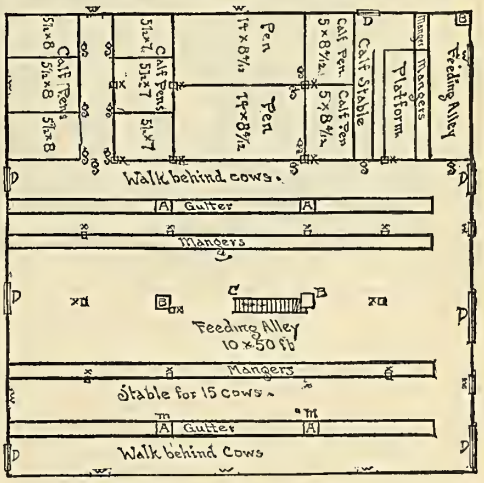


Fig. 6.—THE CATTLE FLOOR.

will he killed, or if hut a small discharge, he may be only temporarily stunned, and proper efforts may get the organs of the body into motion again, just as if they have been stopped hy drowning.

Note again, that glass, wax, feathers, etc., are non-conductors. If a person stands on any one of these, or is covered with one unless it is very thin, the electricity will not go through that line. Nervons people may feel perfectly safe in a thunder-storm if they can get upon a cake of wax, or thick plate of glass, with the clothing drawn close to the lower limbs, and not sit or stand too near a wall or chimney.—Moist air rising from a chimney or from fresh hay or grain in a barn, is a partial conductor, that frequently helps form a channel from a cloud to the earth, and thus invites a lightning stroke. Hence the special ntility of lightning rods in snch cases. Any building having moist parts, or metals, supplies partial bnt attracting roadways from the clouds to the earth.

* Scientific men will excuse our omission to speak of positive and negative elcctricity, etc., in this attempt to give a little popular instruction to non-scientific readers.

To Drive Away Rats.—Mary Hadlem writes ns that rats have so strong an aversion to the odor of peppermint; they will not enter rooms or bins

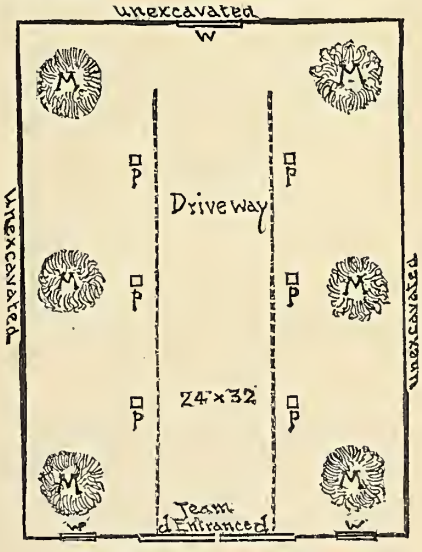


Fig. 7.—THE MANURE CELLAR.

where it prevails. She says of the peppermint plant: "We place it in the oats, rye and corn, when they are brought in, and some goes nnder the pig-stye. Though we no longer have any rats, we continue to nse the plant, for fear they may make ns a visit." If this is so, in the ahsence of the plant, probahly a few drops of the oil of peppermint would answer the same purpose.

The Far-West Pioneer's Home.

R. G. NEWTON.

The first great need of the pioneer settler is a shelter of some kiud for himself and family. This house will depend very much on the amount of money on hand and the distance lumber has to be brought from the railroad. With a few feet of lumber aud a little tarred paper one

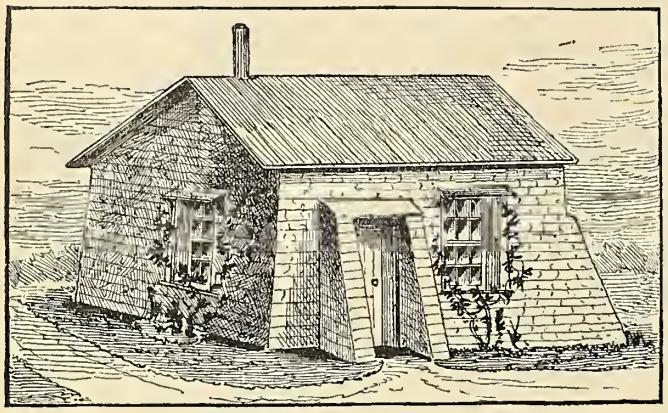


Fig. 1.—A PRAIRIE SOD-HOUSE.

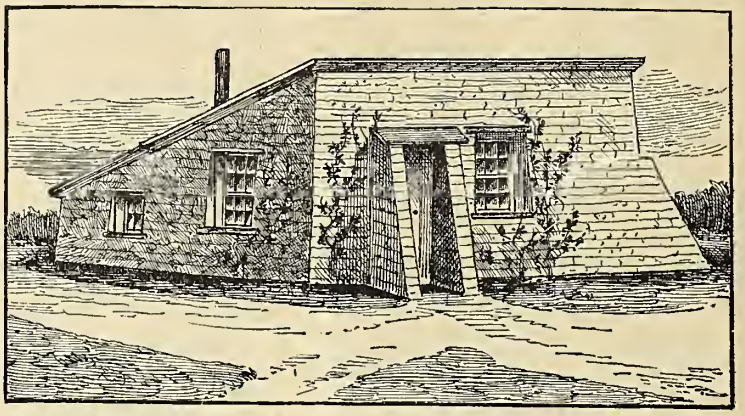


Fig. 2.—A LARGER SOD-HOUSE.

can build a warm and comfortable shanty from the materials to be found on every prairie farm. Sod walls, if rightly made, will keep out cold very well. Select a piece of level ground, with a good turf—if the grass is high it will require mowing—and free from gravel and small stones. Set the plow so that it will turn a sod about four inches thick and as wide as the plow will cut out clean. This should of course he done as near where you wish to build as possihle. You must have your door and window frames all ready before commencing the wall. The door frames should be made of two hy eight joist; two pieces cut thirty inches long and two pieces seventy-six inches long. Nail them together with spikes or twenty-penny nails, setting a short piece at each end between the long ones. This makes a frame thirty inches wide by six feet high inside. On the outside of these joist, sides and top, nail a strip three or four inches wide on edge-wise about two inches from the outside edge. The window frames may be made of inch hoards ten or twelve inches wide, and such a size inside as will nicely fit the sash—the hottom board slanting out to shed rain. The frame requires a strip nailed on the top and each side similar to the door frames. In laying the sods you will need a hatchet with a blade about six inches wide, to cut the sods into lengths; a carpenter's mallet, and an old hutcher or case knife.

Mark out the size of the building iuside, set the door

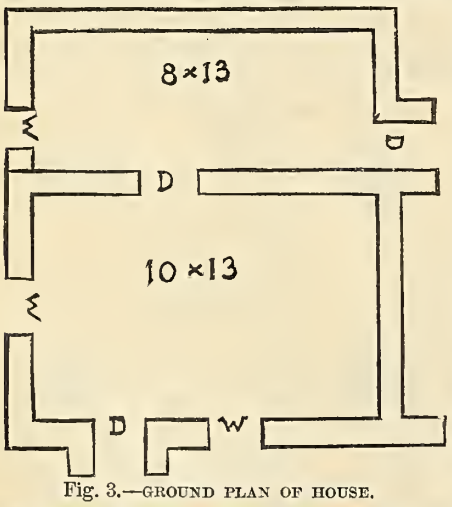


Fig. 3.—GROUND PLAN OF HOUSE.

frames in their places, staying them firmly upright, with the inside edge flush with the inside wall. Cut the sods into lengths about eighteen to twenty-four inches long. Lay a course lengthwise as shown in figure 6, fitting the ends closely together by paring them off with the knife when required. Keep the inside edge of this course close to the line of the inside of the building. Outside of this lay two or more courses, depending on the hight of the wall. Four feet wide is none too much for a wall eight feet high, unless on a very small huilding. Be careful to fit the courses closely together, and break joints with each course. Place one layer all around the full width as shown in figure 4. These will be found of great service, espccially each side of the doors, and may be about thirty inches wide and project four to six feet. Lay the sods grass side up. After a layer is down, fill up any holes or spaces with the pieces trimmed off from the ends. Then with the mallet or the side of the axe go all over the course and level it down, especially on the joints. Fill up and pound down any hollow or open spaces. Lay three more courses in the same way, breaking joints with the course below, carefully pounding down every course and filling in with small pieces where necessary. The next course should be laid across the wall to biud the sods firnly together. If the wall is four feet wide, cut one piece thirty inches long, the other eighteen inches, and lay them as in figure 4. Next lay four courses lengthwise, same as at first, carrying up the abutments with the wall, until within four inches of the bottom of a window. Cut a piece of two by four scantling about a foot longer than the width of the window, and lay it on the wall so it will come about two inches from the outside of the window frame when it is set in its place. If the walls project into the room about two inches more than wanted, they may be trimmed off smooth when finished. After laying the scantling as directed, place on another layer of sods all aronnd, level with top of scantling. Outside of the scantling pound the sod down, slanting it towards the outside of the wall, so that an inch board laid on will come level with the top of the scantling and project about three inches over the wall as in figure 8. This will carry off all water that may drive against the window. Set the wiudow frames in their place and nail them to the board and to the two by four pieces. The frames should then be braced, and the wall carried to the desired hight.

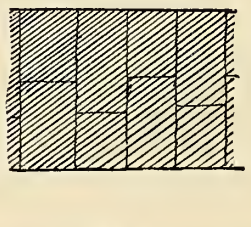


Fig. 4.

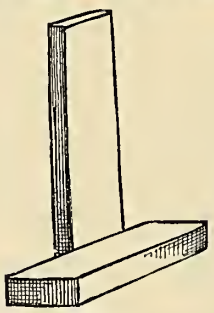


Fig. 5.

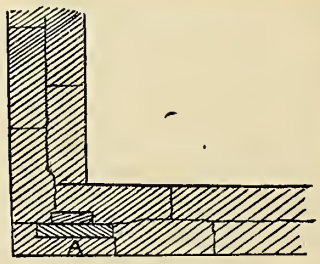


Fig. 6.

When getting up to about two feet of the top it is well to take some pieces of one by six, ahout two and a half feet long, and nail them to a piece of two by four, scantling a foot long (see figure 5). Set one of these in each corner, as at *a* in figure 6, also one in each gable end if the house is huilt like figure 1. If the building is sixteen feet or more long or wide the pieces may be set in ou the walls ahout four feet apart, then carry up the wall to the hight wanted, lay a scantling on flat, bringing it up tight to the pieces just built in the wall, and nail them solidly together, putting the two by six scantling, so that the inside edge will come flush with the inside of wall. Cut the ends of the sticks off when they project above, and lay on another course of sod to bring the wall level with top.

If the house is built as in figures 2 and 3, set in two by

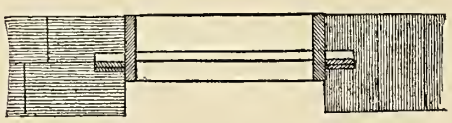


Fig. 7.—SECTION OF WINDOW.

six-inch rafters every four feet, setting them np edgewise. You can cut down into the wall with a knife after it is all done, and it will be well to build in some pieces over the ends of the roof boards, which should be cut off true, and tack on lath or battens every eight inches apart, running them up and down. Such a tarred paper roof will shed water for a year without any repairs, if yon have been carefnl not to cut or tear the paper, and if it projects over the sides about a foot, as it should, the sod building will stand for a nnmber of years and furnish a comfortable shelter for a family.

After the house is all complete, pare off the sods on the outside, so they will look as smooth as a well-laid brick wall, using the hatchet for this purpose. The wall may be drawn in as it is built up, until it is only about half as thick at the top as at the bottom. Ponnd the outside edges of the sods so they will slant down and help shed any rain that may strike on them. After the inside is all pared off smooth, nail some four-inch

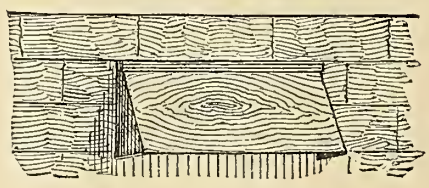


Fig. 8.—A WINDOW CAP.

boards up and down, fastening the upper ends into the plates or rafters. Saw off blocks abont a foot long, drive them into the wall about three feet apart and nail the strips to these. By tacking on common brown building paper and pasting old newspapers over this, the interior is made as neat as if huilt entirely of wood. Nothing short of a cyclone will have any effect on snch a sod house. Many of the points spoken off may seem small, hnt they all go towards rendering the building windproof. Stables and out-buildings may be built in the same way, saving many dollars in lumber that can probably be invested to good advantage, by many who will make humble homes in the Far-West.

Prairie Pests.—The prairie settler will find some new pests to contend with, when he gets in his new home. Among the smallest but not the least troublesome, are the field mice, which enter the house at any point, where they can find or make a hole to crawl through. When I built my shanty, I made it perfectly tight and mouse-proof, as I thonght, but looking up one night I saw a ball of twine roll down from over head,

and then a mouse came and looked to see what he had done. I tried to see how he had come there, where I had no use for him, as it was the only place we had to store our books, papers, seed, etc. The next morning I went out and looked the shanty over; on one end the boards, which run up and down did not meet, and I had neglected to fit a piece in as I intended to do. As the gables lapped down over the sides, it made a nice place for mice to enter. I closed that up and set a trap, and caught the pioneer mouse.

The ground squirrels make much trouble by digging up corn and other seed after planting. Some say that they will commence at the end of a row and follow the planter. A light charge of fine shot, or a pill containing some polson, may be dropped into their holes; either will prove satisfactory, or the children can go fishing after them. Take a strong cord about ten feet long, make a slip noose at one end and tie the other to a short stick or cane. When you see one run into its hole, go and lay the slip noose around the hole and step back the length of the line; in a minute you will see a head pop up, and if yon don't move, the squirrel will come halfway out of its hole; then give the line a quick jerk and you have the squirrel around the body, when you can dispose of him easily.

The coyote or kit fox and badger are numerous in some parts, and are very destructive to poultry, not well housed at night. These pests can both be taken by traps, using a heavy one with a double spring, and attaching it to a heavy clog by a long cord, strong enough to hold them. The coyote is a very neighborly beast, and unless wounded or trapped, it will visit you regularly every night. We were awakened one night by a noise on the roof of our shanty, and we could hear the dancing of a regular jig. The coyote went too near the edge and slipped off the roof, hanging on the edge by his paws. Hearing a voice it was down and off in a second. I have seen them come to pick up the crumbs we threw out for the birds. I have not seen or heard the first house rat since coming to the Far-West.

The "Gambrel" Men Have It.—Webster's Unabridged says: GAMMON: . . . The smoked buttock or thigh of a hog. . . etc.; GAMBREL: . . . The hind leg of a horse; a stick crooked like a horse's leg used by butchers in suspending animals which have been slaughtered for the purpose of dressing and weighing them; . . . to tie by the leg . . . etc. Worcester is nearly in accord with Webster. "Gammon stick" may not be incorrect, bnt it is not in accordance with general usage, which is the authority for spelling and pronunciation.

Scale Insects on the Oleander.—Mrs. M. J. Adams, Jefferson Co., N. Y., sends us leaves of the Oleander, upon the under-side of which are numerous scale lice, apparently the species known as "Broad-scale" (*Lecanium hesperidium*), which often infests plants in the window and greenhouse. From Virginia, southward, this is the most common scale upon plants in the open air, and is very frequently found npon the orange. A very strong solution of soft-soap applied with a brush—an old tooth-brush can be used—will usually remove the scale from plants with firm evergreen leaves, like Oleander and Ivy. An emnlsion of kerosene, described on page 114, is very effective upon trees in the open air, and it may be applied to house-plants with a very soft sponge, washing the leaves with clear water after a while.

Crops in a Peach Orchard.—Chas. E. Barrett, Hillsborough Co., N. H., set out an orchard of peach trees in the spring of '82. The trees are twelve feet apart each way, and are in splendid condition. He grew beans between the trees for two years and now is in doubt what to do, whether to plant some crop or to cultivate the ground without any crop. The trees are rather close. In the famous peach districts of Delaware and Maryland the trees are set twenty feet apart each way, and corn is the only crop allowed. The first year four rows of corn are planted, the first row four feet from the trees, and the rows of corn four feet apart. The next year the rows are reduced to three, and the next to two. The trees come into bearing in the fourth year, when all crops are discontinned, and the soil plowed twice a year, throwing the furrows from the trees in spring and towards them in fall. A small plow is used near the trees, and a somewhat larger one towards the center of the "middles," as the spaces between the rows are called. Mr. B. asks if it will do to plant squashes in the orchard. So far as the trees are concerned, if the hills for the squash are well-manured, we see no objection, but with trees so near together and a short season in a northern locality, we fear that the squashes will not mature. If it is concluded to give up the ground entirely to the trees the cultivator should be used often enough to keep down the weeds.

Three Months More.

Our splendid list of Premium articles for new subscribers to the *American Agriculturist* can be obtained for three months longer. More than thirty thousand people have availed themselves of these Premium offers, to procure useful and ornamental articles for themselves and their friends. What they have done can be done by thousands of others, during the remaining three months. Any subscriber, who has not received this elegant Premium list, or who has mislaid it, can receive another one by immediately sending his address on a postal card to this office. Do not forget to state on the card that you are a subscriber. Other persons than subscribers must send five cents for postage, packing, etc.

Chat with Readers.

Bermuda-Grass Seed.—*B. W. Francis*, Conn., states that a leading seed-house offers Bermuda-Grass seed in its catalogue, and asks how this agrees with our statement that "this grass does not produce seed"? If our correspondent will look again he will find the statement to be that the grass had "not been known to produce seeds in this country." Seeds are produced elsewhere, but where, the seedsmen prefer to keep at present as a trade secret.

Evergreen Puzzle.—"*E. B. Chamberlain*," W. Valley, N. Y., sends us a bit from an evergreen tree which came up in his yard, and is different from any tree he has before seen. The tree is evidently the common Red Cedar in the juvenile state. Several evergreens, notably the Arbor Vitæ, have, while young, foliage quite unlike that of the old tree. The Red Cedar is one that has, when young, foliage very different from that of the old tree. Sometimes it is many years before the tree assumes its regular leaves.

Rye for Hay.—*Mr.* "*N. S. K.*," Decatur, Ga., writes us: In reply to your inquiry about sowing rye for hay, I would state for the benefit of the readers of the *American Agriculturist*, that I sowed about fifteen acres of rye last year, and cut in the milk, but made very inferior hay. Stock did not like it, and in fact only eat it when forced to do so. Oats treated in the same manner made very nutritious hay, and stock would eat it in preference to clear clover hay.

Salt Upon Grass Land.—*W. Brayton*, Herkimer Co., New York., asks us if common salt would benefit grass-land, and how much should be applied. The results from the use of salt as a fertilizer have been variable, according to the crop, the soil, and the distance from the ocean. Its indirect action in strengthening the straw of grain crops has sometimes been marked, and it has been useful on plants that naturally grow near the sea. The safest way for him is to experiment, sowing broad-cast three to five bushels to the acre. Please inform us of the result.

What is Celeriac?—Several have asked this question. The name "Turnip-rooted Celery" describes its nature. It is also called "Knob Celery,' principally by the Germans, who are the chief consumers of it. The base, or proper stem of the plant, is enlarged to form a kind of bulb, which is the portion used. The plants are raised in a seed-bed like the common celery, and set in rows thirty inches apart, and a foot apart in the row, and given good cultivation all summer. Any suckers that appear should be removed. The tuber is used to flavor soups, and is boiled until tender, and when cold, sliced, and dressed as a salad.

Potato "Beauty of Hebron."—A subscriber in Hillsboro Co., N. H., writes us that after trying nearly all the new potatoes for the last forty years, "I believe that the Beauty of Hebron has more good points than any other one kind." He sums up by saying that it is as early as Early Rose and several other early sorts which he names, and for yield equal to any others, "and for table use they are all that could be desired. If I plant but one kind it will be the Beauty of Hebron." This quite agrees with our own experience, and we have for several years relied upon this variety for our main crop.

A Lasting Cucumber.—Near the last of January, *H. Olmsted*, Esq., of New York City, brought us a cucumber, which though of large size was as green and fresh in appearance as a cucumber need be. It was taken from the vine in September last, and being of fine shape, was placed on the sill outside of the kitchen window to ripen up for seed. It remained on the outside until cold weather, when it was taken in and placed upon the sill inside of the window. After an exposure for some four months the cucumber has shown no signs of turning yellow. A singular freak, and could it be propagated might prove useful. It is by taking advantage of sports like this that valuable new varieties are often secured.

Protection for the Strawberry-bed.—*D. T. Jones*, Ovid, N. Y.—The strawberry-bed that was covered last fall with straw, or material for winter protection of the plants, has still need of covering. It should be pulled apart over the plants to expose them, and be left to cover the soil. It will keep down all but a few strong weeds, which may be pulled as they appear, and keep the soil moist. Another important service is in keeping the fruit clean by preventing the heavy berries from contact with the soil. Beds that were not mulched, should be given a covering of straw, if only to protect the fruit. In the absence of other material, corn-stalks laid lengthwise between the rows, have been successfully used.

Trouble with Norway Spruce.—*C. S. Lete*, Star Prairie, Wis. Our letter to you was "returned to writer." In substance we said that the Balsam Fir is a free grower, and if your trees have made no progress after being planted several years there must be some error. Some dwarf evergreen may have been sent you by mistake. But your remark that your "Norway Spruce" loses all its leaves suggests the view that you have not a Norway, or any other spruce. While the spruces shed leaves that are several years old, they are never without an abundance of foliage—enough to warrant the title of evergreen. If their leaves drop, it is impossible to guess what trees you have. When they are in full foliage send us a specimen.

Verbenas from Seed.—*Mrs. W. C. Mason*, Bergen Co., N. J. It is not difficult to raise verbenas from seed, and if these are of a good "strain," the chances are that some fine flowers will be the result. To have them flower well the first year, the seeds should be sown early, in a window box, and as soon as large enough to handle, the seedlings should be transplanted to other boxes, or potted singly in small pots. When the weather is settled, prepare a bed of rich, light soil, and plant out the verbenas eighteen inches apart. Shade the plants in the middle of the day, until they are established. If the seeds were from a good stock, a great variety in size and color of flowers will be produced. If any of them are desirable, the plants may be taken up before cold weather for preservation, or, if room is scarce, new plants may be made from cuttings.

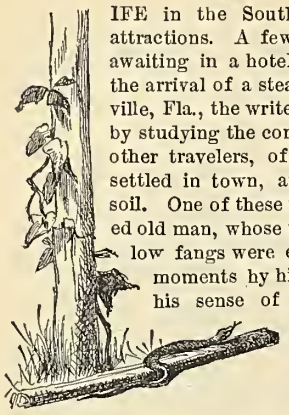
The Time for Hatching.—*H. J. Janzer*, Milwaukee, Wis., has been informed that there is a poultry establishment in which hen's eggs are hatched in considerably less than twenty-one days, and asks where this remarkable "hatchery" is located, and the process by which nature is improved upon. This is probably one of those newspaper items that wander about without any parentage. We have not heard that the time of incubation with the many incubators now in use, has been appreciably shortened, or that the old hen in this respect has been improved upon. Eggs usually hatch at the end of the twenty-first day. With especially fresh and vigorous eggs the chicks may "peck" a few hours earlier. With eggs that are not quite fresh, or from irregularity in sitting, the time may be extended one or two days. Nature and the hen fixed the date, and when eggs can be hatched earlier we shall gladly announce the fact.

Insect Trouble in Grape Canes.—*Mr. C. J. Stanaback*, Abilene, Dickerson Co., Kans., sends us specimens of grape canes "affected," he says, "with some sort of bug or fly."—By cutting the canes lengthwise a row of long slender eggs may be found. Each egg is placed at an angle, the inner and lower end reaching the pith of the grape stem. This mischief is probably the work of the Snowy Tree-Cricket (*Œcanthus niveus*). This cricket prefers the canes of the raspberry but also attacks the twigs of the peach, willow, etc. The cricket feeds upon the grape leaves, working at night when safe from observation. Many vine-yardists have been puzzled to know how their grape-vines were stripped of their leaves in a single night. The only known way of fighting this pest is to destroy the eggs by pruning and burning the punctured canes.

A Small "Worm" in the Greenhouse.—"*L.*" West Troy, N. Y., sends a drawing of a greenhouse pest, of which great numbers are found under the pots. Boiling water, lime, kerosene, and several other remedies have been tried without much success. The creature is not a true insect, but one of the Millipedes, or "Thousand-legs." The one in question is probably an *Iulus*, of which there are several species, often called "Wire-worms." The body is made up of numerous rings which are hard, black, or nearly so, and shining, with multitudes of legs. When disturbed they coil up into a ring. In Europe, where they appear to be more troublesome than here, traps are found more effective than poisons. Potatoes or apples are halved, the interior partly scooped out, and the pieces laid upon the soil, cut surface down. Also small flower-pots, containing partly dried horse-droppings, are laid on their sides about the greenhouse. The traps, whether potatoes or pots, are examined each morning and their contents dropped into scalding water.

Asparagus Beetle.—*Mr. D. S. Harris*, Providence, R. I., wishes to know the best method of fighting the Asparagus Beetle. He says they have been with him but a few years, and already threaten the existence of the asparagus beds. The beetle is blue-black with some brick-red markings. The eggs are blackish and generally fastened to the young asparagus leaves. The first brood of worms appears in June, and feed upon the tender ends of the asparagus stems. A second brood appears in August. Long Island asparagus growers have long been troubled with this insect, and have adopted the following method of fighting the pest: Early in the spring, all the plants are removed from the beds, except those for market. The female beetles are forced to lay their eggs on these shoots, and as these are soon taken to market, no eggs are left to hatch out. This method would be very effective, were it not that asparagus grows wild in many places, and such plants, unless rooted out, become propagating places for the destructive worms.

Early Truck from Florida.



IFE in the South has its peculiar attractions. A few years ago, while awaiting in a hotel near the river for the arrival of a steamboat at Jacksonville, Fla., the writer amused himself by studying the company, made up of other travelers, of northern invalids settled in town, and natives of the soil. One of these was a lean, withered old man, whose two remaining yellow fangs were exposed every few moments by his mirthful cackle, his sense of humor being so strong that he laughed at every second remark of the by-standers. He was airily attired in a faded calico shirt and canvas trousers, his left foot swathed in bandages; and in place of his right leg was a timber contrivance, mended with an iron in the middle where it had been broken. His hand gripped a tremendous twisted cane of grape-vine, with a crooked handle. One of the loungers having invited his party to drink, he stumped forward with the rest, and remarked to the bartender as he set out the whiskey bottle, "a little quinine in mine, Joe." Half a teaspoonful of white powder was dropped into his tumbler, which he drowned with whiskey and tossing it off, stumped back to his seat. My companion, a native of the place, remarked: "Shark Simple" prefers quinine to sugar in his drink, considering it a preventive of ague, and they keep the quinine for his sole use. It is such a good excuse for drinking, that he spends all of his time here, when not sleeping or taking his meals. You'd never think, to look at him, that that old fellow originated the business of sending truck to New York, would you? But he did. He was a fisherman until he lost his leg by a shark when his boat was capsized. Then he settled on some fine land he owned and raised a great abundance of excellent vegetables. A Captain of his acquaintance happening to be returning to New York without a cargo, "Shark Simple" got him to load his schooner with his surplus truck. The result justified his anticipations, and he is now well to do, little as his appearance suggests it."—The business thus began has grown into an important Florida industry, and hundreds of farmers, who do not take quinine in their whiskey, contribute to New York's luxuries, and fill their own pockets. When we once asked a Floridian what was the most important business of the State, his reply was: "Well, next to hoarding invalids, it is farming early truck for you folks up North to eat."—The climate is specially favorable to this industry, being never very cold and seldom extremely hot. The warm days are cooled by the night breezes from the ocean and gulf. Occasionally frosts injure the orange harvest, but not the crops under ground or close to its surface. Spring and autumn are practically unknown; summer occupies two-thirds of the year, and the rainy season fills in the rest, giving renewed fertility to the earth. The crops are about two months earlier than in the vicinity of New York, and a supply for local consumption is raised the year round. The old negress' cry of "fresh strawberries" has roused us on a Christmas morning, and on a New Year's day walk we have seen the bare-footed field laborer in his shirt sleeves, mopping the sweat from his streaming brow.—While Florida is best known by its orange crop, the same forces that have given that industry its impetus, could be most profitably devoted to truck-raising. As yet oranges, and in a lesser degree other tropical fruits, hold the place of honor, and truck-farming remains in lower esteem and is in less energetic and enterprising hands.

The fertile soil is mainly in the northern and central sections, and as a rule back from the rivers, which are dark tortuous streams, flowing through drowned bottom lands, waste morasses, and cypress swamps, often lined with palisades of cane brake as impenetrable as the stockade of an African kraal. Back of the swamps, on the rising ground, the accumulated vegetable deposits of centuries have created spots of unsurpassed fertility. You might travel years on the sluggish tide of rivers like the St. Johns, amid the melancholy fens and forests coming down into and casting their dark shadows on the water on either side, without dreaming of the wealth in the soil but a little way off.—The natives classify Florida land as "high hummock," "low hummock," "swamp," "savanna," "pine barren," "bottom land," etc.—High hummock is timbered, and when cleared every inch can be farmed. Low hummock, also timbered, is liable to tidal overflow, but when dyked or drained, makes some of the best sugar-cane land in the State. The savanna is the meadow land along the smaller streams, needing drainage and protection against tides, but is very rich. Marsh savannas are usually drained for rice and sugar cane. The sandy soil of the coast and the pine barrens of the interior, are valueless. Truck-farming is chiefly on the high hummocks. From these a small fleet of steamers now carry several sorts of vegetables to New York, six to eight weeks in advance of the home-grown—a striking contrast to "Shark Simple's" little schooner load. He is dead now, but a small army of tillers follow his example. They commonly farm in a limited way, and there are few farms that we would consider of great magnitude; but the extreme fertility of the soil produces a large yield from a small area, with comparatively little labor, and that is cheap. The owner of a hundred cleared acres is considered rich, as riches go in Florida. Instead of shipping to Northern brokers on individual account, as formerly, the business is now systematized. Certain large New York houses have agencies in Florida, that take the stock at a fixed price from



CHRISTMAS STRAWBERRIES.

the truckers who ship it to Jacksonville, or other points, and receive their pay of the agents, and have no further care or risk. Along the St. Johns river one sees queer old tumble down wharves in the most unexpected places, often in absolute solitude, sometimes with a dilapidated shed or miserable cabin near by. From one of these a road, soon lost among the oak trees bearded with streamers of gray moss, leads back to a truck-farm, often not a great distance, but sometimes a day's journey away. At other points there is not even a wharf; the road ends at the water, the steamer receiving its freight over a gang plank. At these places, a boy perched in a look-out tree announces the coming steamer, whose smoke he can see at a long distance. At the wharves, a flag run up gives the notification.—The truck-farmer leads a dreary, uneventful life, varied only by hunting and an occasional trip to town. Where there is a stretch of good soil, quite a number cluster; but broken as the country is by swamps and sand barrens, such neighborhoods are not too numerous; more frequently the tiller lives alone, with miles of hard travel between his house and the next neighbor. Working by day and sleeping by night is the monotonous programme year's end to year's end.

During many years past, schemes have been proposed for draining the "Everglades" in the southern part of the State—a vast mysterious swamp, almost one of the wonders of the world. There, over an area of three thousand six hundred square miles, the water is one to six feet deep, studded with islands ranging from a mere dot in the marsh, to hummocks of hundreds of acres, overgrown with thickets of vines and shrubs. These are astonishingly fertile, and the marsh itself is deep with the richest vegetable and alluvial deposits. If ever drained, this now waste expanse will supply farming-land enough to flood the Northern markets with early truck, and make strawberries and green peas as common and cheap in mid-winter as they are now in summer—as common we may say, as oranges have already become.

A glance at a recent map shows that railways are being rapidly extended through the interior of Florida. These will bring many new truking regions into quick and easy communication with the shipping points, and very soon they will be about as near New York in point of time and freight expense as was southern New Jersey only a few years ago. Montreal may soon enjoy fresh winter garden products direct from our Southern Peninsula.

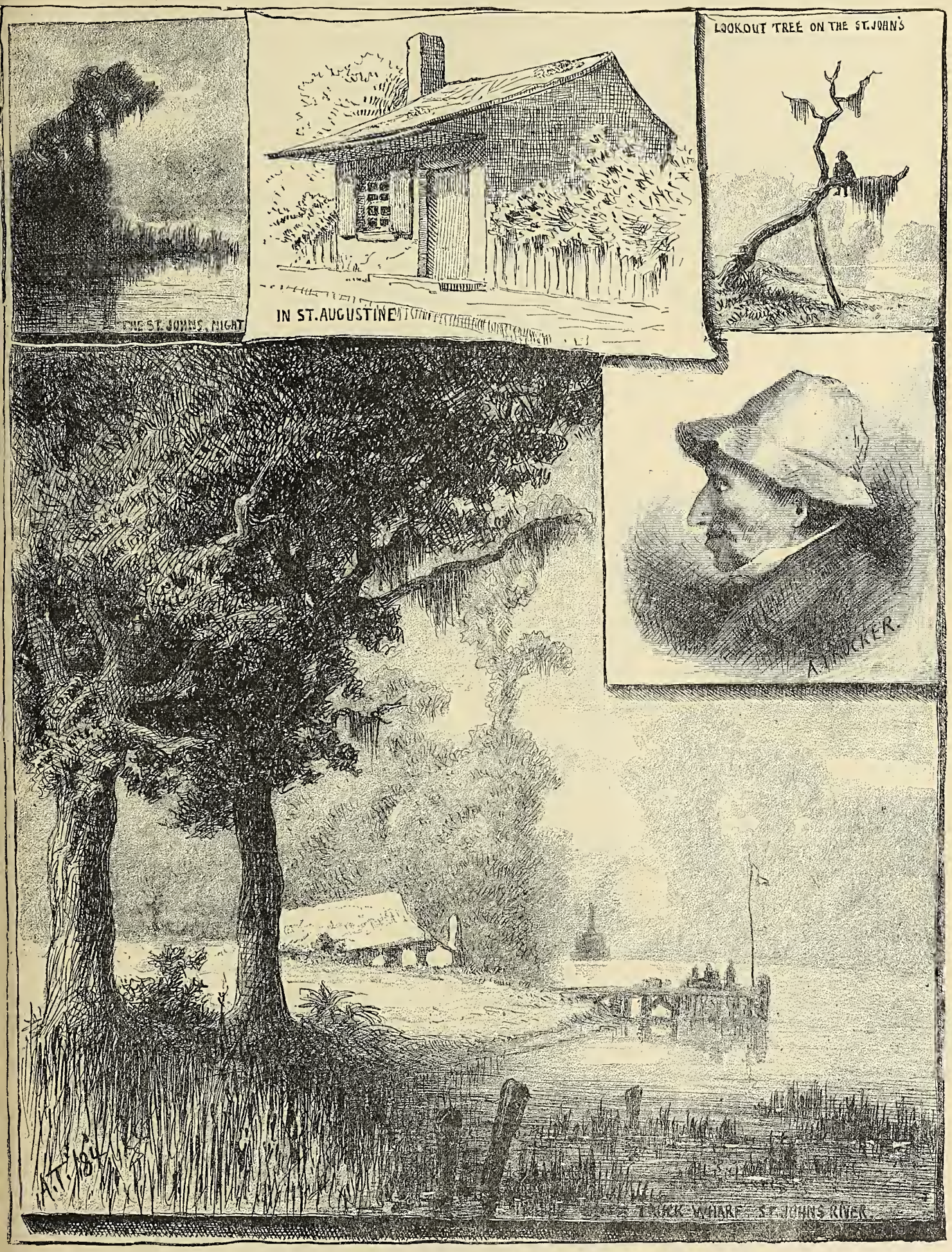


SHARK SIMPLE.



NEW YEAR'S DAY IN FLORIDA.

Drawn and Engraved for the American Agriculturist.

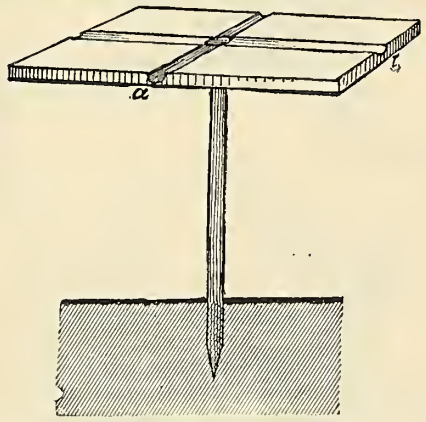


TRUCKING ALONG THE ST. JOHNS RIVER.

Drawn and Engraved for the American Agriculturist.

Simple Implement for Squaring Fields.

Mr. Jno. Bartlett, Oshawa, Ont., suggests the following as an easily made contrivance for laying out fields in fencing, plots for plowing or sowing, and for any other purpose where it is desired to run lines at right angles. Take a piece of thoroughly seasoned wood, an inch or so thick, and eight inches or more square, and fit to an inch hole in its center a staff of convenient length, sharpened at its lower end so as to be easily set firmly in the ground. With a square make two lines on its upper side, crossing in the middle at exactly right angles to each other. Then with a sharp, straight, well-set saw, cut grooves, *a*, *b*, about a quarter inch deep, through or alongside of these lines as a guide. These answer to sight through, and an assistant can set up rows of stakes in quite accurate

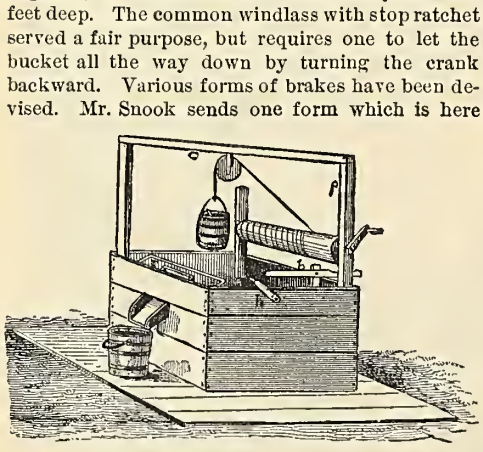


A SQUARING BOARD.

lines, being governed by a motion of your hand in moving them to the right or left. A convenient method of securing accuracy in sawing the grooves, is to fasten the board in a work bench or other vise, together with a thin, straight edge along the mark, to run the saw by the side of in starting it. A board twelve or fifteen inches square will not be unwieldy, and will secure greater accuracy by affording longer grooves through which to sight.

Improved Well Windlass.

As ordinary pumps draw water only thirty-three feet perpendicularly, and practically only about thirty feet from the water surface, force-pumps are required, or a windlass for wells thirty or more feet deep. The common windlass with stop ratchet served a fair purpose, but requires one to let the bucket all the way down by turning the crank backward. Various forms of brakes have been devised. Mr. Snook sends one form which is here



AN IMPROVEMENT IN WINDLASSES.

presented, with several alterations, such as to secure the brake pressure by weight rather than lifting, and to have the lever arm out of reach of a blow from the crank, also a means of securing the brake when leaving it to handle the bucket. The illustration shows the construction and operation. Two opposite corner pieces, *p*, extend six feet high above the platform, and a diagonal piece connecting their upper ends, supports a grooved pully carrying the lifting rope. A hook *h*, turning on a pivot, is thrown over the lever *b*, and slid along it far enough to hold the brake against the windlass firmly when the hand is removed. A swinging iron rod catches in the small pin on the top of the bucket as it rises, and tips the water into the spout. With these little additions, we prefer a windlass and bucket to a pump, as the water is drawn fresh, with no tainting from the pump log. Ordinarily one must draw out all the water standing in the pump tubing, before getting that which is cool and fresh—a considerable waste of power. The actual force required to raise the same water is less with the windlass than with the pump, as there is less power wasted in the friction of the close fitting valves of the pump, and the friction of the water against the side of the tube.

Have Many More Things Early.

Not one farmer or village plot owner in a hundred yet understands how very easy it is to have plenty of early vegetables, green peas, corn, potatoes, etc., with a variety of early flowering plants. After long deprivation of fresh garden products, every week gained in spring and summer is so much added enjoyment, and is health-promoting—moreover, any enterprising man living accessible to a village or two will find large profit in being ahead in the market, since, as with early spring lamb, those first offering fresh garden products, peas, corn, radishes, lettuce, beans, beets, tomatoes, etc., etc., will realize two, three or fourfold the ordinary prices. An instructive illustration was that given by a farmer in Eastern Iowa, who, pointing to his excellent farm with fine buildings said the *American Agriculturist* in effect gave him these, as it led him to go into this early culture, and the extra profits largely paid for both farm and fixtures. Many others can give similar illustrations.

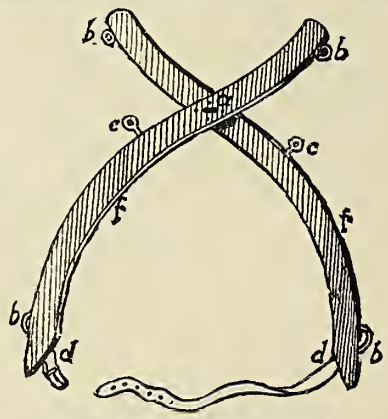
Hot-beds are very good helps, but they are a bugbear to many, simple and easily managed as they are, and they are not essential. Mr. Andrews' method, (see Feb. No., p. 65,) is very good. The cheapest method for ordinary, and especially for larger operations, is the following: Procure a full supply of good sods, two to four inches thick, when practicable cutting off an inch or so of the grass side with a sharp spade. Select the southerly or southeasterly side of a board fence, and place boards along its bottom to shut off cold northerly winds, or loose straw piled along its colder side will answer well. In lieu of a fence, boards set on edge a little leaning against a row of stakes furnish a good wind break, and are even better than a fence as one can work over the top of them.—Lay along the sunny side of the boards or fence a bed of the sods grass side down, two to four feet wide, packing them firmly upon the previously cleared ground surface. If the sods are not a rich mould, and even if they are, it will be an advantage to sprinkle or wet them with liquid manure dipped from a low place in the barn-yard, or that made by partly filling a barrel or cask with manure from the horses or cattle heaps, and filling with water, stirring and then dipping it out, or drawing it from a plugged hole at the bottom.

Now, with a sharp spade or other thin implement cut through the sod, not disturbing it, but leaving it in squares of various sizes from an inch or two to four or five inches across, and in the middle of each square place a few seeds of anything and everything which it is desired to bring forward early, as peas, beans, corn, tomatoes, cabbage, cucumbers, melons, egg plants, etc., etc., and of various flower-seeds if desired. Potatoes cut in suitable sizes, or small whole ones, can be placed in the larger squares. All the above can be done quite rapidly, and as soon as the snow is off. It would have been better to have had the sods cut in the autumn and piled up with leaning boards over them to shed rain; but when not done the sods can be gathered as soon as the surface frost is out. Sheltered from the colder winds and exposed to the sun, the seeds will vegetate and get the roots well started in the sod. If a freezing night is approaching cover the sods with boards, or throw on a layer of loose straw when the plants are above ground. Whenever the open ground is warm and dry, and danger of frost is over, these sod pieces are to be set in hills or rows. The growth will go right on rapidly with a full month or more of time gained, as few plants vegetate and extend their roots beyond the diameter of the sods within a month from the time of sowing.

The cost and profit are easily seen and estimated. A bed of sods a yard wide and only four rods long will furnish nine thousand five hundred and four squares, averaging three inches across, or about exactly enough to plant two full acres with hills three feet apart each way in the rows!

Bitting Colts.

A colt should be thoroughly bitted, that he may not be awkward and ungovernable. One can always tell by the way a horse carries his head, whether he has been well broken or not. It is very annoying to have a horse throw his head up and down when travelling, or swing it around sideways in an awkward ungainly manner. The contrivance here illustrated, is a most excellent one for bitting young colts before they are broken to harness. The two long crooked pieces, *f*, *f*, are natural crooks of some hard tough wood, finished to two



A DEVICE FOR BITTING COLTS.

inches wide, and one and a quarter inch thick. They are halved together at their intersection, and firmly fastened with four small bolts. A staple *a*, is for attaching the back strap and crupper. Short straps or cords from the bits are snapped into the staples at *b*, *b*, *b*, *b*, and drawing from different directions, they thus prevent throwing the head about, and gradually induce a uniform habit. The turrets, *c*, *c*, have the lines passing through them as in ordinary harness, and may be taken from any old harness. The girth is attached to the staples *d*, *d*, when using. The four short lines from *b*, *b*, *b*, *b*, must not be drawn in too tightly at first, or the colt will acquire a habit of backing to loosen the strain on the mouth. This contrivance should first be fitted on in the stable or a small yard, allowing the colt to become accustomed to its new outfit, before attempting to drive with the lines. When gently handled, the most wayward colt can be made tractable through the use of this simple arrangement. The under sides of the pieces, where resting on the back, may be padded to prevent any abrasion of the skin. The back-strap, crupper and girth, need to be strong and secure, as they must bear considerable strain when the colt is viciously inclined. W. D. BOYNTON.

More Local Fairs Needed.

We have, perhaps, enough of great expositions, national fairs, State fairs, etc., to give vent to the enterprise of the leaders in industry, and as nuclei for the numerous demoralizing side shows that cluster around these larger gatherings. But do we have enough of small local fairs and industrial shows which come within the reach both as to distance and productions of the ordinary farmer and his wife, his sons and daughters? In Great Britain, and especially in Scotland, each neighborhood has its "Poultry Show," or its "Flower Show," to which the neighbors contribute the best samples of their own products, and they stand a chance of being awarded honors which would be

entirely out of their reach at the greater fairs. Every farmer can go and see what his neighbors are doing, and thus an emulation is aroused which the more extensive fair can never awaken. The hard-worked, plodding farmer says he has no time to bother with fairs and prize stock, and choice fruits and fancy flowers, and it is true if he has to compete with persons of wealth and leisure who make these a part of their avocation. But most of ordinary contributors have time and pride enough to keep abreast with those whom they recognize as their peers. While it is neither profitable nor honorable to do anything poorly, every person ought to have something in which he takes especial pride; if a farmer, it may be his horses or his hens, his potatoes, or even his roses; the wife or daughter may excel with her bread, her house plants, or her decorative work. If one has a "hobby" it need not encroach upon the more regular duties and he will be sure to find time for it; he will take as much pleasure in it as in all his other work. He will be furnished with the literature of that subject, and be recognized by his neighbors as an authority and a success in that department, and by this effort will receive a valuable discipline and uplifting of character. He will be able to make that department of the local fair interesting, while he will be the better fitted to contribute to the other departments also. In the British fairs, already referred to, the young men have athletic sports and contests which add interest to the occasion and also stimulate a pride in the manly physique which is much needed by our American youth. Our County fairs do not fill the bill; while important and useful their territory is too extensive, their plan too elaborate, their machinery too complicated and expensive, and their occurrence too rare. The township would be a better division of territory for the gathering we have in mind, or better still, a neighborhood defined by common consent. W. J. M.

Transplanting Boxes.

Mr. L. D. Snook sends us the following: Figure 1 is a common box of any size, four to six inches deep. Thin strips, three inches or so wide, are set in the box, two or three inches apart. Small

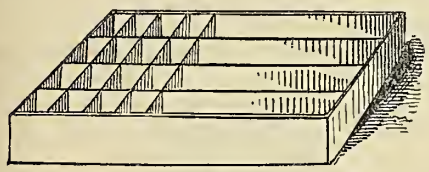


Fig. 1.

bits of shingle or pasteboard serve for cross divisions. This may be used for starting seeds, and for carrying lifted plants to be pricked out; the division pieces confine the roots of each plant to its own portion of soil. In figure 2 a bit of shingle, or any thin wood, say four inches long and two and a half inches wide is cut partly through at its middle, dampened and bent to a right angle, as at *a*. A succession of these set in the box keeps the soil in separate masses for removal with the plants. Figure 3 indicates the use of bark rings, which are readily cut from branches or the trunks of trees, of any size desired. These can be set in a box and

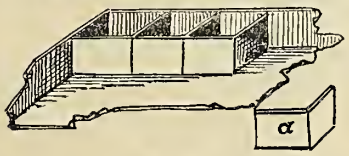


Fig. 2.

filled with suitable soil for starting the seeds. By crowding them in they will assume nearly a square form to save space. The interstices are to be filled with earth to keep the whole moist. A sheet of pasteboard can be cut with little waste into pieces like the whole of figure 4, and creased or partly cut through at the dotted lines. When *a, a, a, a* are brought together in the form of a box, *b* is turned under as a bottom, and set into the large box. When transplanting *b* is dropped down, and the earth with the plant is pushed out into the hill undisturbed. In all these arrangements, as well as with the sod pieces, Mr. Andrews' plan of placing a few inches of fermenting manure underneath will give bottom heat to hasten the germination of seed and growth of plants. It is, of course, important



Fig. 3.

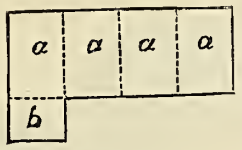


Fig. 4.

in all cases to keep the seed and plant-bearing soil moist, but never wet. This may be done by occasional sprinkling with a fine rose watering pot, or better by keeping the soil below well dampened, so that moisture enough will rise into the sods, or the earth in boxes, by capillary attraction. Boxes holding half a foot of earth or more, below the division cases, will retain and supply moisture.

The Cultivation of Filberts.

A correspondent in St. Louis, Mo., asks us if the English Filbert can be successfully raised in this country, which would be the best State in which to undertake it, and if the shrubs or trees can be obtained here? He states that he "has seen nuts here called filberts which were not half as large as the genuine English nut."—This letter allows us to say a word in favor of a most neglected fruit, the Filbert. It is exceedingly popular in England, where it is also called Hazel Nut, and when "the nut" or "nuts" are mentioned the filbert is the one designated. The small nut mentioned by our correspondent was, no doubt, one of our two native species, the nut of which is very small and thick-shelled with a diminutive kernel. The filberts of the shops are from a distinct species of Southern Europe. In England, where a dozen or more varieties of the filbert tree (*Corylus Avellana*) are cultivated, a very large and popular kind with rough, hairy husks is known as Cobs. From the success shown by a few trials in New York State, there is little doubt that the filbert will succeed in all the Northern States. Our best nurseries keep trees of a few of the best English varieties. The filbert is usually multiplied by suckers, of which it forms a great many, by layers, and sometimes by grafting. Probably our native species would answer as stocks upon which to graft. In the English plantations, where the shrubs for convenience of gathering the nuts are kept about six feet high, the shrubs are planted ten by ten feet apart. The suckers are very numerous and must be cut away, and a round, compacted head formed by pruning.

The Berry Patch.

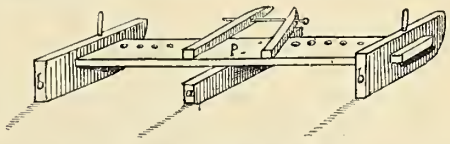
Former notes upon the cultivation of the small fruits, have been given under "Fruit Garden." Perhaps the very persons for whom they are especially intended—the farmers, thinking they have no fruit garden, have passed them by. By fruit garden, we mean essentially a berry patch. As farmers more than most others deprive themselves of the small fruits, which they might and should have in abundance, we have endeavored to show that their culture is a simple matter. Let the determination once be made to have an abundance of small fruits, all the rest is easy. To make a beginning, unless some friendly neighbor will furnish plants, there must be a small outlay at the start. If only a few plants of each kind of fruit are procured to begin with, these can be increased very rapidly, indeed, some multiply themselves. No investment will bring such a large return in health and family comfort, as that expended for the plants to stock a berry patch. Send to some reputable dealer for his catalogue, make a selection and send the order early. The express or mail will bring the plants in due time. When the plants come, there must be a place ready to receive them. Select the best land that can be found near the house. It is well to have it in sight, as tresspassers will be less apt to trouble it. It would be better to have prepared the soil for the patch last fall, but do it now, rather than to postpone the garden for a whole year. Prepare the soil as well as you know how with the means at hand. This means well-rotted manure, and thorough working with the plow and harrow.

Pruning the Grape Vine.

Mr. W. W. Meech, Vineland, N. J., writes us: Grape vines that have come to a bearing age, may be pruned in such a manner as to be very certain of the results. By examining the vines while they are growing, one can very readily see from which buds of the previous year's growth, have produced the branches that are producing the crop of the current year. This will serve as a guide to the pruning for the next crop, and so on from year to year. Shoots from canes older than the last year, very seldom produce anything but wood, but that wood is all right for a crop the next year. The shoots from the axillary buds, where the new and old wood come together, will hardly ever produce any grapes. The first bud beyond the axil will be found to yield fruit, but the clusters from the next bud, and for several further on, will generally bear the shouldered bunches of the crop. I have found in my experience that six buds on a strong cane, so selected, will generally yield three fine clusters each; and occasionally four. Up to the capacity of the vine, we may look for this number of clusters from the buds of very strong and vigorous canes of the last year's growth. Hence, according to the number of perfect clusters we estimate the vine capable of producing, we can readily select those giving the best promise, and cut all the others off. This plan of pruning greatly reduces the labor as compared with the old method of leaving spurs of one or two buds all over the vine, and gives little wood and many grapes.

Row Planting—Simple Marker.

No farmer or gardener needs to be told of the advantages of having everything possible growing in straight, uniform rows. Aside from the greater convenience in cultivating, hoeing and weeding,



AN EASILY MADE MARKER.

there is profit in giving all plants, including field grain crops, an equal distribution of sunshine, rain and air. This consideration alone is decisive in favor of drilling in all seed, to say nothing of the uniform depth secured. But drill or no drill, a good marker is desirable, and there are many excellent kinds. Here is one sent us by Mr. H. H. Hastings, Corning, Iowa, easily made at home, with trifling expense. The main plank, *p*, about a foot wide, may be of any length from four to fourteen feet or more. Spike or bolt in the center a runner, *a*, and over this two pieces of a form and in a position to receive any wagon tongue available, or the thills of a single wagon if the marker is to be a small one for one horse; make two, four, or six short runners, *b, b*, as desired and cut through each a mortise to receive the plank. This can be held at any distance apart desired by pins, as shown in the engraving. The lower edges of the runners can be made of a form to suit the soil. In light soil with weights on the plank, or the driver riding on it, the marks can be made deep enough to drop in seed of any kind. A plank, fifteen feet long, with two runners on each side, the middle will mark five corn rows three and a half feet apart, allowing a few inches waste on the ends of the plank.

A New Early Raspberry—The Hansell.

The age of a variety of fruit may be said to date from the time it is first offered in the trade by the nurseryman, though the variety may have been cultivated privately for several years. The Hansell was first discovered in an uncultivated place upon the farm of the late J. S. Hansell, in Burlington County, N. J. The character of the fruit attracting the attention of Mr. H., he propagated the plant, and at the time of his death in 1881, had about ten acres of the variety in cultivation. The Hansell was introduced to the pomologists at a meeting of fruit growers, held upon the farm where it originated. Parry, Collins, Moon, Lovett and many others, well-known in small-fruit culture, examined the fruiting plants, and the "sense of the meeting" was expressed as to the good qualities of the Hansell. J. T. Lovett, of Little Silver, N. J., thus sumed up his opinion: "The earliest ripening. The most profitable. Large, bright crimson, hardy, prolific, and very firm."



THE HANSELL RASPBERRY.

To growers of small fruits, a gain of a few days only in the earliness of a raspberry, is of great importance, as it has a marked influence upon the market returns. The general testimony shows that the Hansell is quite ten days earlier in ripening its fruit than the Brandywine, and other leading varieties, and the fruit brings the highest prices. After earliness, the next most important character is hardiness; it is claimed that the Hansell has never been injured in summer or winter. It will be seen from the engraving that the Hansell belongs with the large varieties, being nearly the size of the popular Cuthbert, while its firmness and color, two important qualities in a market berry, are commended by the commission men. Unlike many new fruits, we are pleased to state that the Hansell has been tested by growing it for market, some six years or more before the plants were offered for sale.

A New Curled Kale.

The varieties of non-heading cabbage called borecole or kale has never become popular with our people; the two or three varieties sold in the markets as "sprouts" and "German greens" are bought chiefly by Europeans. The plants are hardy, and if sown in early fall they will make their growth and furnish a cutting very early in spring. While we do not regard them as fine for the table as are the Savoy cabbages, they are, after they have been frosted, superior to any of the solid headed cabbages, being of a fine texture and pleasant flavor. Those who are fond of "greens" will find kale to give an early supply with but little trouble. The market varieties mentioned above are short-stemmed, the leaves forming a tuft close to the ground. There are other varieties (some of them known as Scotch kale,) of various hights, from one to two feet or more. The latest variety is one offered this season from France. Its full title translates into "Half-Dwarf Green, Extra-frizzled Kale." The leaves, as shown in the engraving, are crisped and curled to a degree that may well be called "extra." The tall varieties are sown at the same time, and are treated all through the same as late cabbages. The strikingly beautiful leaves might be used for garnishing large dishes the same as parsley: indeed, the plant would be cultivated as an ornament were it not for its associations with the kitchen. Several years ago some ornamental kales were introduced in which the leaves were not only handsomely cut and curled, but had beautiful colors and variegations. While none could deny their ornamental character, and that they were more showy than many "foliage plants," they did not become popular; they were regarded as out of their place. For the same reason the beets with richly colored leaves, introduced later, failed to be appreciated.



A NEW KALE.

A CENTENNIAL COTTON EXPOSITION is announced to be held in New Orleans, La., beginning on the first Monday in December next and closing in May, 1885. The present year being the centennial anniversary of the first exportation of cotton from this country, it is proposed to celebrate it by a "World's Fair." It will, besides cotton, include "all arts, manufactures, and products of the soil and mine." This exposition has the approval of Congress, and will be under the auspices of the National Cotton Planters' Association and the City of New Orleans. The schedule, which shows a well-considered list, may be had by addressing E. A. Burke, Director-General, New Orleans, La.

A Handsome Native Shrub.—The Button-bush.

After midsummer the globular white flower-heads of the Button-bush are conspicuous in swampy places and on the margins of ponds and other still waters. The shrub has a wide range, extending from Canada to Florida, and westward to Arkansas and Texas. It is six or eight, and sometimes ten feet in hight; its usually smooth leaves, on short leaf-stalks, are commonly in pairs on opposite sides of the stem, though they are often in threes. The individual flowers are nearly half an inch long, tubular, and terminated above by four short teeth. The four stamens are attached to the inside of the corolla near its mouth, and do not extend much if any beyond it, while the style of the single pistil is much protruded. The flowers are gathered in very dense clusters or heads, which are remarkably regular in their spherical form. The heads are about an inch in diameter, though they appear larger on account of the protruding styles, which also gives the clusters a lighter appearance than they would otherwise have. The flowers vary from pure white to cream color, finally turning brownish, and are in great abundance. The botanical name of the shrub is *Cephalanthus occidentalis;* the first, or generic name is from the Greek words for head and flower, while its specific name indicates that it belongs to the western world. Having such a wide range it has received other names besides Button-bush; among them Swamp Dogwood, River-bush and Crane Willow. We call attention to this native shrub as one desirable to use in ornamental planting. Some of our most showy shrubs are found growing in wet places, and many hesitate to transfer them to cultivated grounds, thinking they will not endure the change from a swamp to garden soil. This is a mistaken idea. While plants as a rule are injured by removal from a dry soil to a wet one, most natives of wet soils not only survive a change to a dry location, but many seem to like their new conditions and improve under them. The Button-bush readily adapts itself to cultivation, and is especially desirable on account of its blooming in July and August, when few other shrubs are in flower. It is propagated by seeds, by layers and by cuttings, but it is easier to transplant thrifty young plants from their wild localities, taking care before planting to trim the top to compensate for the loss of a portion of the roots.



THE BUTTON-BUSH—FLOWER CLUSTERS AND LEAVES.

What is Cardoon?

A lady who sees Cardoon in her seed catalogue every year, wishes to know what it is like, and "if it would be worth her while to try it?"—Cardoon is a very large, thistle-like plant. The first year from the seed it makes a tuft of large, handsomely divided leaves; the second year the flower stalk appears, and runs up to the hight of six feet, bearing numerous clusters of blue flowers, resembling the heads of a thistle. The leaf-stalks of the first year are the edible portion. After the outer leaves have made their growth, the leaf-stalks are brought together and tied to hold them erect, the whole cluster is then closely wound, beginning at the bottom, with a hay or straw rope, to exclude the



A CARDOON PLANT.

light, and blanch the leaf-stalks. Blanching is sometimes effected by surrounding the plants with straw, placed erect around them, and binding it on. In our only trial of this method we succeeded in blanching Cardoon by surrounding it with very heavy brown paper. The engraving shows the appearance of a cluster after blanching, ready for the kitchen or market. The leaf-stalks are very tender and crisp. They are usually stewed and dressed with white sauce. Those who like Jerusalem Artichokes will probably fancy Cardoon, as their flavor is very similar and also with cheese.

Heavy Manuring in the Garden.

The garden, though a small patch upon the farm, generally an acre or less, if properly cared for will bring more profitable returns than any cultivated fields. All the vegetables and small fruits that can be consumed in a large family, with a surplus for market, can be raised with very little difficulty. It will add much to the health and happiness of the household to have every appetite satisfied with a daily supply of seasonable fruit and vegetables. To do this the garden must have abundant manure. Though other fields lack, give the garden all it can appropriate, for the same reason that the Jersey cow or the best milker has all the food she can digest. The profit is in the surplus feed above what will sustain her normal weight. The garden is to supply the finest products to the table; let the soil have all the fertilizers the plants can make use of. The profit is in their full feeding. Their quality will be better, and the cost at its minimum. The garden is ordinarily near the barn-yard, the pig sty, the hennery, the privy, and the sink drain, and should have the first claim upon every fertilizer made upon the farm; and if that is not enough add concentrated fertilizers from abroad. It is none too much to fertilize the garden at the rate of twenty cords of well-rotted manure to the acre. Let every plant, tree and shrub in it have enough to eat. Give the garden the first claim upon your compost heaps, and when you have spread broadcast and plowed in all the manure you can afford, do not fail to have a few bags of special manures for top-dressing during the growing season. Full fed plants are far less likely to be hurt by insects than half-starved ones.

Everlasting Flowers—Improved.

Among the "Everlasting Flowers" those most useful to work in with and brighten up large holiday decorations are the Helichrysums. Their flowers are the largest, and are so easily raised, that with a little fore-thought they can be had in abundance. The species first introduced into our gardens (from Australia) was *Helichrysum bracteatum*, and was popularly called "Golden Eternal-Flower." This was before the term "everlasting" was applied to the group of flowers of similar unfading character, and before we had any other color than the original golden yellow. The name given to the genus *Helichrysum* (from the Greek words for *sun* and *gold*), was on account of the rich yellow color of the flowers of this species. Since then various other species have been discovered, and there are now a number of colors besides yellow. The original "Golden Eternal-Flower" was between two and three feet high; while the flowers were brilliant, they were not sufficiently numerous to conceal the coarse, weedy appearance of the plant itself, which on the whole was not ornamental in the garden. Of late years cultivators have succeeded in obtaining white and other varieties of the original, and with the introduction of others, and probably by crossing, there are a number of garden sorts presenting quite a range of colors and shades, including orange, various reds, browns and purples, besides some with two colors in the same flower. Improvements, quite as important as those in color, have been made in the size of the flower-heads, and in the stature and habit of the plants, so that many of them are desirable plants in the border. The engraving represents one of the most recent of the improved varieties of *H. bracteatum*, called "Dwarf Rose," introduced by Villmorin of Paris. The flowers are numerous and large, standing well above the foliage and of a color heretofore lacking. Where it is desired to have as many flowers as possible to dry for winter, the seeds of the Helichrysums should be started in a hot-bed or in the house, and the plants set out when the weather is settled. The flowers (properly heads of flowers), should be gathered when they first open, dried in the shade, and after they are dry, kept from the dust until wanted for use. If it is desired to raise seeds, leave a few of the earliest flowers upon a plant or two. By removing the flowers as they appear, the season of blooming may be prolonged until frost. A number of other everlastings are given in the seed catalogues. We have growing wild two

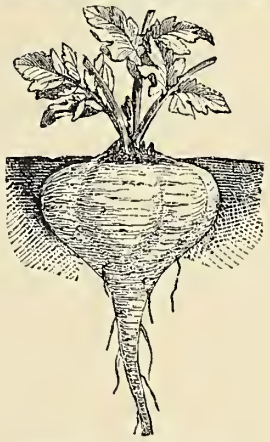


THE "DWARF ROSE" HELICHRYSUM.

plants, which are known as Everlasting. One of these, the Pearly Everlasting (*Antennaria Margaritana*) if collected early and carefully dried, presents the appearance of the French Immortelles.

The Shape of Vegetables.—The Parsnip.

All our vegetables of which the root is the edible portion are widely different from the same plants in their wild state. In the uncultivated beet, parsnip or other root, the plant expends its first year from the seed in preparing to produce seed again. It forms a tuft of leaves and these are engaged all the first season in storing up in the root a supply of sugar, starch and other nutritive matters to be expended the next year in a rapid growth of flower stalks and flowers, and in the nourishment and perfecting of seeds. But our root crop plants in the wild state have nothing like such roots as are seen in the same plants when cultivated. They store up, when uncultivated, only just sufficient food to meet the wants of the plant the next year. For the use of man this tendency to accumulate food in the root has been developed, and the plant



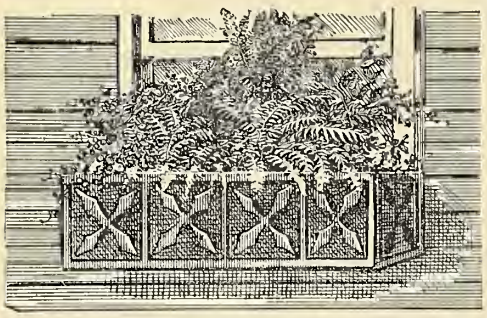
TURNIP-ROOTED PARSNIP.

taught, so to speak, to provide an excessive amount, to meet our wants in the way of food. In doing this the plant has been given richer soil than it had when wild, and by selecting for seed-bearers the roots showing the greatest tendency to enlargement, we have produced in our cultivated plants roots so enlarged that they would not be recognized as belonging to the same plant as it appears when wild. It is important to keep up the conditions that have produced the present unnatural size of roots, and not only to raise seeds from plants grown in rich ground, but to select roots for seed-bearing that show no tendency to degenerate. The two common weeds, the wild parsnip and carrot, show the effects of a neglect of these precautions, and the reputation of seeds raised by certain growers illustrates the importance of observing them. But size is not the only advance to be achieved and maintained in our edible roots. Shape has much to do with their value. A few months ago we noticed the great improvement within the past few years in the shape of carrots sent to market. Instead of a long, spindling end, they taper slowly and terminate bluntly. Roots of this kind are more easily dug, weigh more to the measured bushel, and are more economical in use, whether in the kitchen or fed to animals. As a globular form—a sphere—contains a greater amount of solid contents than any other, the tendency in the improvement of various roots is towards this shape. The improved ruta-bagas approach a spherical form. Of all the roots grown in the garden the parsnip and salsify are the most difficult to dig. The parsnip, especially, tapers very slowly and has a long, tail-like root which goes far down into the soil. An improvement on the common long parsnip was made by Prof. Buckman several years ago. By starting with the wild parsnip he produced the variety known as "The Student," which tapers very rapidly. The French have for some years had a short parsnip called the "Round," and in English catalogues "Turnip-rooted," though it is much longer than round. Recently the French seed-growers have succeeded in reducing the length still more, and in producing a root of the shape shown in the engraving. This removes the difficulty of digging, and is an improvement over former kinds.

THE HOUSEHOLD

Box Window Garden.

A box easily made, can be so applied to the outside of any window, as to be an ornament, and a constant source of pleasure throughout the summer, and when frosts come, the box may be changed to the inside, and be refurnished, replacing exhausted plants with others, and be a thing of beauty and joy all the winter. Any ordinary box, made or bought for a few cents, of inch boards, a foot or so in width or depth, and as long as the window is wide, can be filled up with little work. It is strengthened by sewing upon all the inside corners, including the bottom ones, pieces of tin cut two inches wide, and bent at right angles, to fit in closely. The bottom rests on the window ledge, and is held from slipping off by a hook from the underside, closing into a ring fastened into the window sill. The outer side of the box is supported by a wire or small chain, running from a ring in each corner up to rings at the sides of the window. Before setting it in place, stain the box in imitation of walnut, or ornament with some simple distinct pattern, with two colors of paint. Brown and white, black and white, or a dull, dark-blue and white, are good. Bright red should be avoided, or indeed any shade of red, as it will not harmonize well with some delicate colored flowers. A bright blue can be sometimes used to advantage,



A WINDOW BOX.

If some regular pattern of floor oil-cloth is used to cover the box, when seen from a little distance, it will appear as if covered with tiles. The box is filled with earth, and such plants as make a good show either of flower or foliage, planted in it. German Ivy and Kenilworth Ivy are good for trailing over the edge. Ferns, some kinds of ornamental grass, geraniums, begonias, callas, verbenas, and the small-flowered petunias, are all desirable. Rose colored and scarlet flowers in the same box do not have a good effect. There should always be white flowers mixed in with bright colored ones, and for these sweet alyssum does well. An excellent plan is to have some of the plants in pots sunk in the earth; then when the plant goes out of bloom, the pot can be removed and another set in its place, without disturbing the other plants in the box. MRS. BUSYHAND.

Home-Made Easel With Paper Rack.

There was one corner of our sitting-room for which there appeared no appropriate article of furniture. Neither table nor chair fitted it. One of the girls suggested an easel, and one of the boys set to work at once to carry out the idea. In a few days the corner was filled with a pretty home-made easel, on which was placed an attractive engraving. Later an ornamental pocket was added, below the cross-piece on which the picture rested, for the reception of newspapers, pamphlets, or music. The easel can be made of pine, and stained either black or walnut brown, then oiled or varnished. Or it may be made of ash, or maple, or other light wood, and be as simple or elaborate as one's taste may suggest. The pocket can be made and used independent of the easel, and attached to it by screws, or tied on with bright-colored ribbons.

A Word on Cooking.

To say that the happiness of home depends in a great degree upon the cooking, would seem at first to be considering it from a very low standpoint. Yet it is true, and it is also true that in the majority of well-to-do homes this responsibility so important in its consequences is given over to an ignorant, careless and incompetent class. To consult one of this class, in a case of severe illness, would be considered the extreme of foolishness; but not only the health of the body, but of the mind, and morals even, has its foundation in the food which sustains life. Cooking needs an intelligent, cultivated mind to guide the hands quite as much as painting and music. It is one thing to prepare food so carefully that it shall look inviting and be nourishing and digestible; quite another to mix a few ingredients, place them in the oven, or over the stove, which is either too hot or too cold oftentimes, without any interest as to the result. Take one or two common dishes as cooked by ordinary servants, and compare them with what they should be; for instance that much abused dish, "hash." No wonder, as it is brought to the table too often. The odds and ends of meat, left over from many meals, are picked up; some are fresh and some dry, some with tough gristle on, and all chopped together with potatoes (the last perhaps just cooked and hot, which spoils all hashes). It is put into a cold spider, with fat of some kind, and moistened with water, sometimes too much and sometimes too little. When hot it is sent to the table. The real, appetizing hash is something very different and a nice breakfast dish. Water in which meat of any kind has been boiled should be set away to cool, the fat removed and the broth saved for soups, stews and hashes. All gravies should be saved and treated in the same way, and no fat at all left in them. A jar of "Extract of Beef" should be in every house, and if there is neither of the above on hand, a quarter of a teaspoonful of the extract in a half cup of hot water will moisten and flavor the hash, and add very much to its richness. More should be used if the quantity of hash needed is large. Corned beef is always best, but the hash is good when made of cold roast beef, mutton, or fowls. A roast beef bone will often have on it meat enough for hash, when there is not enough for the table in any other form. It should be boiled in a very little water (and the water saved to moisten it) until the meat loosens from the bones; then chopped with twice the amount of cold boiled potatoes, seasoned with salt and pepper and moistened before putting on the fire. The spider with a little butter or beef-dripping in it, should be boiling hot, the hash put on and covered until a light brown crust has formed; then turned over on the platter and served.

The writer once engaged a so-called "professional cook." She came at night and was asked to make an omelet for breakfast. It came to the table cold, and "flat as a pancake," and of course was hard and indigestible. Why? It was overcooked and also cooked before it should have been, for an omelette should be served the moment it is off the fire. Eggs, always cook some after removal from the stove, and should therefore be taken up before they are fully set. An omelet should have the yolks and whites of the eggs well beaten separately, with a spoonful of milk to each egg added, with salt and pepper to season, and just before placing in a very hot spider, which should have a small piece of butter in it, the whites of the eggs should be added to the yolks and milk. They ought not to be beaten in, but dipped through and through the yolks, etc., then poured into the spider, the part which thickens around the edge lifted back to the center in a heap and taken up just before it is all set. If the butter was hot enough it will be a delicate brown when turned over upon the plate for the table. ETHEL STONE.

Table Decorations.

Floral decoration for the table is now attracting a great deal of attention, and florists are exercising their wits to devise something new and beautiful to ornament the "festive board." At a recent Horticultural Exhibition in New York large prizes were awarded for the best designs of this kind. The craze is sometimes carried to excess, but in moderation nothing gives more an air of refinement to a neatly spread table than a few gaily tinted, but not too highly perfumed flowers, as strong odors affect some people very unpleasantly, especially feeble persons, and may completely destroy the pleasure of a meal in other respects perfect.

For lunch parties, and ordinary occasions, low vases, or triangular-shaped flower dishes of sparkling cut glass, filled with rosebuds, carnations, and violets, set here and there on the table, are exceedingly pretty, and are preferred by many to taller ones, as they less obstruct the view across the board. But for a large dinner-party, a center-piece of fruit and flowers seem necessary. If expense is not considered, a handsome épergne or crystal rose-glass like a large bowl, resting on a circular plate-glass mirror, and filled with fragrant blossoms, is always beautiful; but if neither of these is convenient, an excellent device may be easily arranged with articles to be found in every house. Take a large platter, round or oval, and set an inverted saucer upon it. On this place a glass fruit-dish, and into this two goblets with their feet firmly bound together with ribbon, the lower one being inverted, and the upper standing upright. If preferred a tall slender glass vase may be used in place of the upper goblet. This forms an extempore épergne, and to fill it lay ferns and large leaves

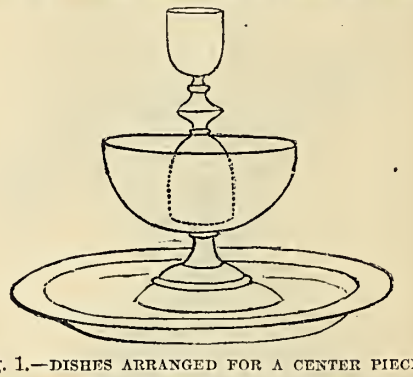


Fig. 1.—DISHES ARRANGED FOR A CENTER PIECE.



Fig. 2.—CENTER PIECE PARTLY FILLED.

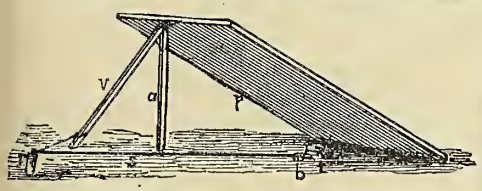
round the edge of the platter, slipping the stems under the edge of the saucer to keep them in place. Heap the plate with fruit, mingling a few flowers, for color. Over the edge of the high dish hang ferns, ivy, or smilax, to trail gracefully down, and fill in with grapes, or any other fruit Fill the upper goblet with water, and set it in a bouquet, from which droops smilax, or some other creeper to conceal the glasses. You will thus have a graceful and charming decoration for the table.

In cold weather, when flowers are exhorbitantly high, and in some places not to be obtained at all, fruit and berries alone can be used. Bright red and yellow apples, and a few grapes, mixed with wild berries and grasses gathered from the fields,

as bitter-sweet, burning-bush, mountain ash berries, and sweet berries, the blue berries of the Virginia creeper, all work in effectively and form very pretty ornaments.—A growing plant, particularly if in bloom, looks very well on a dining table, if planted in a decorated China or Japanese flower-pot.—Small bouquets of choice flowers are frequently provided for the guests, either placed in tiny bouquet-holders, or laid beside each plate. For ladies, the button-hole bouquet is perfect, composed of several flowers tastefully arranged, while each gentleman has a button-hole flower, which differs from the bouquet in being simply a single blossom, like a rose-bud, or tuberose, with a sweet scented leaf for a background. The stems of the flowers should be covered with damp cotton and wrapped in tin foil. Two or three violets and a rose geranium leaf are dropped in the finger-bowls to perfume the water, and be rubbed gently through the fingers. S. A. C.

Dead-Fall for Mice and Rats.

Mr. W. H. Banks, Durham, Iowa, sends us a sketch of a very simple contrivance, which he has found quite effective. The board *p*, or plank if for rats, is held up at one end by two sticks arranged



A DEAD-FALL TRAP.

as in the engraving. A thread *s*, tied to *v* runs loosely through a little staple at *r*; at *b* it is tied into a bit of pork rind or other bait, and another bit of thread tied to the other end of the bait is held fast at *t* by a carpet tack. On nibbling through the bait the string is released, letting the plank fall upon the victim. The same thread will answer for setting the trap several times. Use common linen shoe thread, or a little stronger thread for rats. There is so little apparatus seen, and the whole so open, that the wily rat seldom suspects danger.

Box Clothes-Hamper.

Large covered willow baskets, called hampers, for holding soiled clothes can be bought, but a box for the same purpose can be made at home at a very trifling expense. Any box of light wood, sixteen by twenty inches, three feet high, is a good size. Paint it a light gray or white inside, and carefully remove any projecting splinters that might catch the clothes. Stain the outside in any desired patterns, varnish afterward. The light portions are the original wood, and the dark stained brown. For a good staining fluid mix burnt umber with boiling vinegar, a small quantity at first, so that more vinegar or umber can be added until a desired shade is obtained, to be ascertained by testing the fluid on a small piece of wood.—The patterns can be drawn on the wood and the staining fluid applied with a brush like paint; or, an easier way is to paste, over all the wood to remain its natural color, strips of paper cut with exact edges, and then brush the staining fluid over the spaces left. The paper is easily removed by moistening it with a little water. After the stain is dry varnish the whole box. Fasten a strip of plain or figured chintz around the top with brass-headed tacks; finish it with a string to draw it close.—Another method is to cover any box of suitable frame and size with chintz or calico, tacked on, or even pasted. In all cases attach a couple of handles on opposite sides, a fourth of the way or so below the top. These may be cheap, metal drop handles, obtainable at any hardware store; or of strong ticking or other cloth covered with the same material as the box; or be cut out of wood and stained, projecting only enough from the hamper to admit the fingers behind them. WESTERN HOUSEKEEPER.

Hints About Making Rag Carpets.

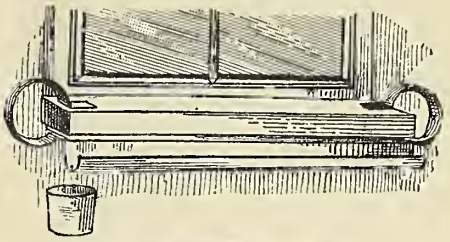
Mrs. May Stuart Smith, of the University of Virginia, sends us the following: Making rag carpets is one of the things that should not be, and doubtless will not be relegated to a place among the lost arts. Such carpets supply to many families comfort that would be unattainable otherwise. If the housewife is too busy to make them herself, there are always poor unhandy women without capacity for higher service, who are very glad to rip, cut and tack pieces together for the smallest remuneration, and at ten cents a pound they can earn some part of their scanty livelihood and are glad to do it, and we are pleased to give them the work. Such carpets turn to useful account many a fragment which would otherwise be thrown away, old furniture covers, garments, etc., without strength enough for any other good purpose. Cotton, woollen or silk, come into play equally well, if they are barely strong enough to be cut and wound into balls. Half an inch wide is the general rule, a little wider if rotten or very thin, and narrower for thick woollen stuff. The narrower they are cut, the further they will go in making length, of course at the expense of thickness. A pound of rags to the yard is the general calculation, though one of the nicest carpets I have seen, was a yard and three-quarters to the pound. For warp, bale cotton No. 6, containing thirty hanks to the bunch, is best, though No. 7 will answer and goes further. The weaver's allowance is two hanks to the yard for nearly yard wide carpet, but two hanks should be allowed for cross threads. Two bunches of No. 6 will therefore make twenty-eight yards of woven carpet, and of No. 7, forty-four yards. Warp doubled and not twisted, will be found to wear best.

Here is an important point for the inexperienced. In weaving, have a shuttle filled with the warp cotton and weave in two threads between the strip of rags. It will greatly strengthen the carpet, and if the warp is of fresh strong cotton, the carpet will wear until you are perhaps tired of it, or rich enough to buy a more costly one. I doubt, however, whether any other carpet ever gives you so much real pleasure as the rag one which was the result of your own contrivance and patience.

To color the warp, divide it into two equal portions, and with a twenty-five cent package of logwood, dye half black, using as a mordant a little copperas and bluestone. Dye the other half with copperas, afterwards washed out with weak lye. Have it put on the loom in stripes not over four inches wide; check it with the filling as tastefully and systematically as possible to form exact squares with the warp stripes. All the old flannel and white pieces may be put together and dyed to make the carpet brighter. A simple way of dyeing beautiful red colors is to get fifteen cents worth of red aniline from the drug store, tie it in a thin muslin bag, soak it in cold water to be afterwards added to a a large kettle of hot boiling water in which a tablespoonful of alum is dissolved. Wet the pieces well and dye as much as your kettle will conveniently hold. This dye will keep and may be used more than once. Green and blue aniline are first dissolved in a little alcohol, and then used the same as the red. In the country, walnut bark and the nut shells, red oak, pine and walnut bark, or sumac berries, are used, in each case dipping the fabrics in lye afterwards to set the coloring matter. Another style of carpet is said to look very well, and is certainly easier to manage, viz.: have no design or stripe or check, but with the warp dyed any good serviceable color, weave in the pieces of all colors sewed together in such a way as to diversify them as much as possible. This has an effect somewhat similar to what is seen in chéne goods.

To Catch Window Drip

As long as it is colder outside than inside the house, moisture will condense on the glass, and frequently run down, staining paper etc. Mr. Benj. F. Gore, Dewitt, Iowa, sends us a sketch of a device which has been effective with him. A strip of galvanized iron or of zinc, three inches wide, as long as the window-sill, has one edge turned at a right-angle to set under the front edge of the sill, to which it is clamped firmly at each end, by a semi-circular loop of oval half-inch iron. The outer edge of the metal strip is bent downward and



A CATCH FOR WINDOW DRIP.

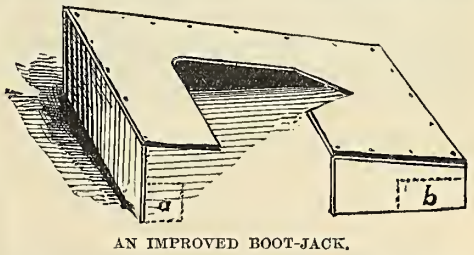
round as a small gutter, one end a little lower than the other, to cause the water to run off, when it is caught in an oyster can, suspended on a screw.

Care of the Teeth.

While it is a fact that good and bad teeth are largely inherited, yet good ones may soon be injured by neglect. Not only as a matter of health should the teeth be preserved as far as possible, but for appearances. Nothing more detracts from the comeliness of a young man or woman, than the display of teeth yellow and black from neglect; the better looking the person, the more glaring is this blemish. Parents are often greatly to blame in this respect. As soon as a child gets its permanent teeth he or she should be taught to use a tooth brush, with water, at least once a day. This would often save the child from much mortification and perhaps misery in after life. The use of a tooth brush not too stiff, with water simply, morning and night, is all that most teeth require. If tartar collects in spite of this, the use of Castile soap (the white is preferable) upon the brush will generally answer. If something more is needed to keep the teeth clean, prepared chalk is one of the safest tooth powders. Avoid all tooth powders that are at all gritty. Some contain powdered pumice stone, which will remove both the tartar and enamel. In using the brush, it is equally as important to apply it to the back-side of the teeth as to the front, and instead of only moving it across the teeth, a part of the brushing should be from the gums upward and downward, to remove any particles that have lodged between them. Never use a metallic tooth-pick; a sliver of wood is preferable even to the quill so commonly used. Whenever decay is noticed in the teeth, go to the dentist at once.

Toe and Heel Boot-Jack.

Mr. Wilbur S. Sparks sends us a sketch of a Boot-Jack to hold the toe as well as the heel, and describes it essentially thus: Material, inch boards



AN IMPROVED BOOT-JACK.

of hard-wood; end blocks thicker. Top, ten by twenty inches. Right end block, two inches deep; left end, four inches; side pieces sloping to fit. Six inches and eleven inches from left or toe end cut square in seven inches deep. Split out the five by seven inch pieces, and cut heel triangle four inches deep and four inches wide at widest end. Smooth off all sharp edges. If you have a scroll or other narrow saw the cutting may be made with round corners.—To the above we have indicated by dotted lines where a little shelf, *a*, may be placed for a blacking brush, not high enough to obstruct the boot toe; and at *b* a place may be made for holding a small blacking-box.



How Tommy Celebrated the First of April.

BY AGNES (CARR) SAGE.

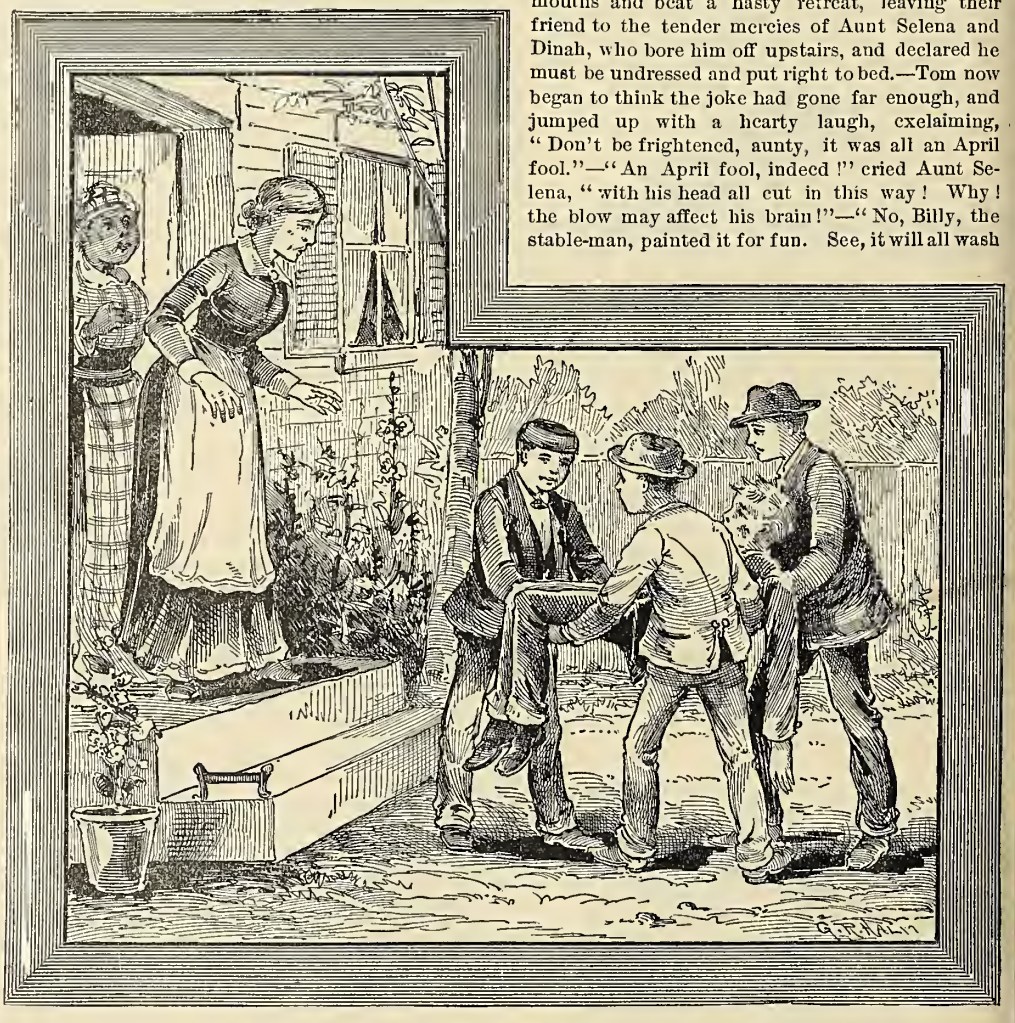
"It's April Fool's day, hurrah!" shouted Tommy Bangs, springing up in bed, and turning a double sumersault over the footboard, endangering his spinal column—unless, as Aunt Selena declares, it was made of India-rubber. But, like many another boy, Tommy seemed to have as many lives as a cat, and now landed on his feet, and proceeded to put on his clothes, with a jig or pigeon-wing between each garment, for he was as fond of gymnastics as jokes. The first of April was a perfect gala day to him, as it gave an implied license to play all kinds of pranks, and to-day he expected to have "a jolly time," as he expressed it. The day was to end up with a party at Carrie Shaffer's in the evening, at which, as the merry little hostess had confided to him over a lump of taffy, there was to be the funniest April Fool supper, with everything a sham, from the cake and candies filled with cotton and pepper to the molasses and water lemonade.

"But will there be nothing at all good to eat?" Tommy had asked in some dismay.—"Oh, yes," replied Carrie; "mother will be sure to have plenty of goodies, to come on, after we have had all the fun we can out of the first course, but you must be sure and not tell a soul, Tommy, or it will spoil the whole thing."—Master Bangs vowed that wild beasts should not drag the secret from him.

So with these pleasing anticipations filling his mind, Tommy, having danced into his jacket and brushed his carrot-colored locks until they stood up like a halo about his comical little freckled face, slid down the banister and commenced the day's campaign by slyly exchanging the contents of the sugar-bowl and salt-cellar, emptying Aunt Selena's snuff-box into the tea-pot; and setting all the clocks ahead of time. Soon after he called to Dinah, the cook, that it was quarter to eight, and Miss Bangs would be down in five minutes. He laughed until tears came, to see how she flew around like a fussy black hen to hurry breakfast on the table.—"Why, Dinah, what makes you so early this morning?" asked Aunt Selena, descending the stairs at the sound of the bell, and holding up her watch, the hands of which pointed to ten minutes past seven.—"Lor sakes, Missus, I frought it was dret'ful late, and been spinnin' round hyere like a chicken wid it's head off. I bleve dem clocks is all bewitched I does; for shore as you live honey, dey's all a strikin' eight dis bressed minute."—"Guess April Fool has been meddling with them," said Tommy, preparing to attack a plate of hot muffins.—"Or a Tom Fool, which is much the same thing," remarked Aunt Selena dryly, while Dinah as she went off to the kitchen to steep some more oolong, muttered, "Dat ere boy am de berry biggest imp dis side o' Dixie, an' I spect he will come to some dret'ful end, shore!"

"There, Thomas, is a ham sandwich and a potato turnover for your lunch," said Aunt Selena, handing the lad a neat package, as he was about starting for school; "and I do beg that you will not go near Robinson's livery stable any more. I don't like the language you hear there, and besides you are so venturesome; one of the horses will surely kick you, and perhaps injure you for life. That black mare of his is very skittish and unmanageable."—"Gentle as a lamb, women don't know nothing about horses," grumbled Tommy ungrammatically, as he pocketed his lunch, and set off on a run for the schoolhouse. "I am sick and tired of bread and ham, and potato pie. 'Pore trash,' as Dinah says, anyway."—But when, after a morning of rather more bent pins, and paper streamers, than pot-hooks and fractions, he discovered that his sandwich was made of turkey and his turnover of the nicest mince meat, and learned that Aunt Selena could April fool as well as her nephew; although in a much kinder and more satisfactory manner.—"She's a brick, if she does think a fellow is always going to break to pieces, or be kicked over the moon," soliloquised Tommy. But in spite of his gratitude, when school was out, he could not keep away from Robinson's stable, for he thought "the black mare is off in the country to-day, so there can be no danger, and I'm in for the best trick yet, if only Billy the hostler will help me."—So, with his chum, Dick, and his scatmate, Harry, early in the afternoon he entered the barn where three men were polishing the harness and washing down the handsome carriages.

"Here comes Tom, Dick and Harry," remarked one; "well boys, what's up?"—"Oh! such a lark!" said Dick. "Tom is going to fool his old aunt, so she won't get over it for a week."—"But we want your help, Billy," said Tom, while Harry produced from his pocket several cakes of black, blue, and red paint.—"So you want to make Miss Bangs think you were kicked by black Sal," said Billy, when the boys had explained: "That would be a sell; I never set up for an artist afore, but I'll do the best I can for you," and mounting Tommy into the rung of a tall ladder, and watched by the admiring and critical company, Billy proceeded to surround the lad's left eye with circles of black and blue, and to adorn his forehead with a long gash, and drops of scarlet paint to represent blood.—"There," said Billy as he finished and stepped back to survey his work. "Now that's what I call artistic:" and he brought a bit of broken looking-glass for Tom to view the disfigurement.



CARRYING A JOKE TOO FAR.

Drawn and Engraved for the American Agriculturist.

....Oh! art stopped short
At the cultivated court
Of the Empress Josephine,"

warbled Dick. "But I declare, Bill, you seem to be ruining it."—"Don't I look frightful?" exclaimed Tom. "But Aunt Selena's hair won't 'turn white in a single night,' for it's that already. So come on boys; anything for sport."—And Aunt Selena fulfilled the little scapegrace's greatest expections, for she came rushing from the house as they entered the gate, screaming, "O! my boy! my boy! It is just what I feared! He has been kicked by the black mare."—"Yes mum," said Dick, "he was quite insensible when we picked him up, but seems to be a coming around now."—"I am so faint, I shall die; I know I shall," groaned Tom, feebly, while his companions shook with inward convulsions, which, however, they hoped Miss Bangs would attribute to fright.—"Bring him right in here," said Aunt Selena, opening the door of the sitting-room, "and Dinah run for the camphor and arnica."—"O! my head! my eye!" moaned Tom, writhing as though in agony; at which Dick and Harry were so overcome with emotion they stuffed their handkerchiefs in their mouths and beat a hasty retreat, leaving their friend to the tender mercies of Aunt Selena and Dinah, who bore him off upstairs, and declared he must be undressed and put right to bed.—Tom now began to think the joke had gone far enough, and jumped up with a hearty laugh, exclaiming, "Don't be frightened, aunty, it was all an April fool."—"An April fool, indeed!" cried Aunt Selena, "with his head all cut in this way! Why! the blow may affect his brain!"—"No, Billy, the stable-man, painted it for fun. See, it will all wash off," cried Tom.—"Oh, he's quite delirious! quite!" said aunt.—"Crazy as a loon!" ejaculated Dinah, with a roll of her white eyes.—And in spite of the boy's protestations the two women popped him into bed, bound up his head in vinegar and brown paper, and applied mustard to his feet, to draw down the inflammation, while his tears and prayers—for he now began to be thoroughly frightened—only met with, "See how frantic he is getting. I only hope it won't result in a brain fever. Poor boy, how he must suffer! We must call in Dr. Emerson if he is not better soon."

The guests at Carrie Shaffer's that evening watched long and eagerly for Tommy Bangs.—"Hope his head didn't ache so hard as to keep him

at home," laughed Dick; and at length Harry volunteered to run around and see what was the matter.—He returned with his face as broad as a full moon, and between bursts of merriment chuckled out, "I guess Tommy has been caught in his own trap this time, for his aunt just told me he was very ill indeed, in bed, and she should'nt think of allowing him to go out after receiving such a blow."—Poor Tommy, meanwhile, was repenting his foolishness and watering his pillow with great briny tears, and when, at ten o'clock, Aunt Selena came in to inquire how he felt, he threw his arms about her neck, begged her pardon for his disobedience, and promised never to play such a practical joke again. Need I say that Aunt Selena kissed the forlorn little culprit and granted full forgiveness.—"But was it for a punishment," asked Tommy, "that you pretended not to believe me, and plastered me up in this style?"—"Partly, my dear," replied his aunt, with a sly twinkle in her eye, "and also as our April fool."—The next day, Tom, looking very sheepish, said to Dick and Harry that "it wasn't easy to catch old birds with chaff."



An Illustrated Rebus.—Some odd-looking lines worth a careful reading by old and young.

The Doctor's Talks.

THE HATCHING OF EGGS.

This is one of the interesting things that come with spring. The awakening of life, in what appears to have no life at all, is wonderful to trace, but it is difficult to observe, and somewhat expensive, especially if spring chickens are marketed. Still something that takes place within the egg, can be shown by engravings, as we shall see presently. Almost as wonderful as the coming of a chick from the egg, is that of the coming of a plant from the seed. I say "almost," because in many seeds you can see a very tiny plant—the beginning of one, while an egg gives no hint that a chick would come out of it. In spring you will find much to interest you in watching the sprouting seeds, and

ALSO LEARN MUCH ABOUT PLANTS,

by observing the different young seedlings and how they appear. When we think of it, what a wonderful thing is a seed! Dry, apparently dead, it may remain lifeless for years, yet treat it properly, give it air, moisture and heat, and in time there will appear a green, living plant! There is nothing in the wonder books to equal it. In observing the different ways in which plants appear from the seeds, you can take up some where the seeds are too thick, or you can sow seeds in a box. Observe how different the little pea is, from its relative the bean. How different the corn from the pumpkin, often planted with it. Also notice, when very small seeds are sown thickly and too deeply, what a weight of soil the tiny plants will break through and often lift, in order to make their way above the surface. But all of the awakening of plant-life in the spring, is not to be noticed in seeds.

OBSERVE THE BUDS ON THE TREES AND SHRUBS.

How lifeless they seemed all winter. Now, as soon as the warmer days come, they show that they are alive. See how they swell, and soon after throw off the blankets that covered them in their winter's sleep, and the plant that was within them rapidly pushes forth, or it may be a bouquet of flowers appears in full beauty. The shoot that comes from most buds is really a young plant, but growing on a branch instead of in the soil. Notice the different kinds of bud-scales, as the blankets that covered them are called; see how some of these are covered with varnish to keep out the water, and how in some buds a kind of cotton or wool was packed around the little plant to keep it warm. Many other things about the spring life of plants will reward close observation.

"KUT-KUT-KER-DA-A-R-KUT."

from the poultry yard, tells that there is a spring awakening there also. The laying of eggs and the hatching of them is well known by every boy and girl, to be the spring occupation of the hens. But poor Biddy is likely to be reduced to a mere layer of eggs. She will be deprived of her three weeks of leisure in which she could sit and do nothing but meditate upon the probable number of chicks she would bring off, and be deprived of the pleasures and trouhles belonging to her as a mother.

THE INCUBATOR OR ARTIFICIAL HATCHER,

has done this. Artificial hatching has long been practised, but of late, "brooders," or "artificial mothers," have come into use. These are heated by hot-water tanks of galvanized iron, and so useful are they, that one of my friends who hatches his chicks under the hens, as soon as they are ready to leave the nest, takes them from the care of their real mother, and places them under this galvanized iron hen, and finds that they are brought up with much less loss, than by a fussy old hen. Last spring, I amused myself by

PLAYING THE OLD HEN.

That is, I ran an incubator, and hatched out several broods. I did this in order that I might learn the difficulties in hatching by artificial means. But before I talk about the hatching of chicks, let me say that you will find it less difficult, and nearly as interesting, to watch the hatching in eggs of another kind—those of the frog or toad. In shallow ponds and puddles, you will readily find in early spring frog's spawn, or as it is often called, frog's spittle. This is at first in threads, and afterwards in a mass—a clear jelly-like substance, with dark spots all through it, which is the eggs of frogs or toads, for they can not be told apart. If you can find some of the threads or strings, prefer that to the mass, but take home a little, a spoonful of either, and place it it in a dish of rain or river water. If you have the *American Agriculturist* microscope, or a magnifier of any kind, you can see what changes take place in the eggs, better than without this help. The mass is a great number of transparent eggs, surrounded by a clear jelly-like substance. The dark spots are the yolks of the eggs, and these are the parts to be observed. Keep the dish, either a saucer or something deeper, in a warm room, and as the water evaporates add more. If you have a microscope, take out an egg or two each day, and examine what takes place in it. You will find that the yolk divides up, first into two parts, then into four, which change their form and size; after a while you can see an imperfect form, something like a tadpole, but all head and little tail. This will increase in size, and eyes will in time appear. Some morning you will find in your dish,

SOME LITTLE SWIMMING THINGS,

which do not look at all like tadpoles, for they are long and narrow, and have some curious things on each side of their heads. But they really are newly hatched tadpoles, and the appendages of the head are gills. Very few persons know that for a short time after hatching the tadpole has gills, and breathes water like a fish. It soon loses the

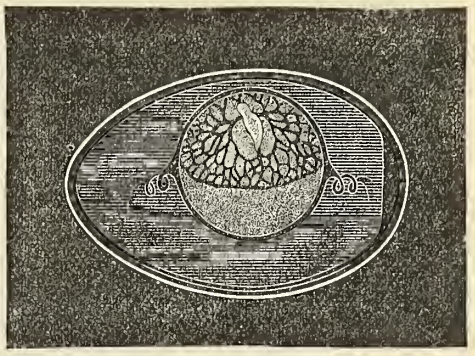


Fig. 1.—SECTION OF EGG, BEGINNING OF CHICK.

gills, and ever after breathes air, and must from time to time come to the surface for it. The tadpoles will continue to grow, and if you wish to watch their final changes, in which they lose their tails, and gain their legs, you must keep them in a large vessel of water. If there is a pool near by, you may see these last changes in "wild" tadpoles.

THE HATCHING OF CHICKS.

An incubator, if one can spare the eggs, will allow the progress of hatching to be watched from day to day. An incubator should be so contrived that the temperature can be kept steadily at one hundred and two degrees, and the eggs must have the needed air and moisture. If this heat, and air and moisture are provided, the eggs will have all that the old hen can give them. After the eggs have been in the incubator, or under the hen, for four or five days, it can be told whether they are good or bad, and whether they will hatch or not. If any egg is held up to the light, or better still, if an "Egg-tester" (an affair to allow the eggs to be held up before a candle) is used, and it is perfectly clear, that egg will not hatch. If, on the other hand, a dark spot is seen in the egg, it shows that a chick has been begun. When the contents of a fresh egg are turned out into a saucer you know that there are two distinct parts, the yolk, which is opaque and yellow, and the white, which is transparent. If you look carefully at the yolk you

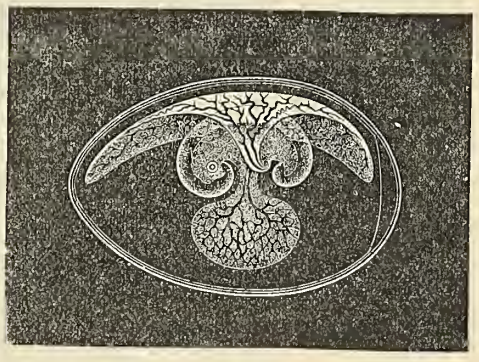


Fig. 2.—EGG WITH CHICK FARTHER DEVELOPED.

will see a lighter place on it; as the scientific name forth is place is a hard one, we will call it "the spot."

THE FIRST SIGNS OF LIFE APPEAR

at this spot. When the eggs have been in the incubator a few days, an artery or two, with blood rushing though it, may be seen, and after awhile a whole network of arteries will appear at the spot, as in figure 1. Some days after the circulation of blood is seen, the beginning of what will become the chick can be made out. It does not (figure 2) look much like a chick at first, but it will take its proper shape in time. A sort of membrane in which the blood vessels first appeared, is spread out over this tiny chick and helps nourish it. The chick has hanging to its lower side a bag, filled with what was a part of the yolk. But we must now leave this chick to grow, and talk more about this matter at another time. THE DOCTOR.

The Young Musician.

"Tu whit! tu whit! tu whee! Chick-a-dee-dee! Bobolink! bobolink! spink spank, spink!" and then such a burst of melody, one would have thought a whole aviary of song birds had been let loose in farmer Milkweed's orchard. Where did it come from? Not from that saucy robin, surely; or the brown sparrow flying home with a worm in her beak! No, indeed; 'tis a rarer songster than either of these—a veritable human mocking-bird—no other than little Patsy French perched on the limb of an old apple-tree; his straw hat pushed back from his sun-burned face, piping forth sweet notes in imitation of the wild birds, that the little feathered creatures come fluttering round, taking him for one of their own. But a gruff bass breaks in upon the liquid treble among the apple-blossoms as Farmer Milkweed shouts, "Pat-sy, Pat-sy, where are you, you young rascal!" and as the bound boy slides down from his hiding-place, "Be off to the store, and bring me a penny worth of nails, in three shakes of a lamb's tail, or I'll make yer sing a different tune from that."—"Yis, sur!" and briskly the bare feet patter down the dusty road.

At the store door he encountered a lad of his own age, who, leaning against a post, is twanging away on a jew's-harp. Patsy comes to a standstill. The squeaky little iron instrument has wonderful charms for him, and "Like it?" asks the player, twanging out "Yankee Doodle."—"Stunning," is the terse reply. "'Tain't good for much, but yer can have it, if yer choose."—If a gold mine had suddenly opened at Patsy's feet he could not have felt more astonished, or more richly endowed than at this gift, and could scarcely stammer his thanks. What cared he for the scolding he received for loitering, or being sent supperless to bed, when he could creep up in the hay-mow, and there, in the gathering twilight, practice upon his new treasure. That was but the first of many a concert in the old loft. There Patsy might be found, actually drawing melody from the second-hand jew's-harp, breathing forth "Robin Adair," "I Want to be an Angel," and "Home, Sweet Home," his only audience the swallows that flitted among the rafters, the brown hen, the comfortable pigeons, and the tiny mice, often rising upon their hind-legs as though about to take the first steps in a minuet.

Then Patsy was happy, in spite of his orphan lot, and hard task-master, while his musical soul overflowed with joy and rapture. A shower one day drove a stranger to take refuge in Farmer Milkweed's barn. He heard the weird strains, stole softly up the steps, and caught a glimpse of the brown-eyed "cherub who sat up aloft." He was a professor in a Conservatory of Music, and was touched by the young player. An interview was held with the farmer, and he finally carried Patsy off to his "castle of delight." Years rolled away, but often as a famed musician, he sees again his first audience, the swallows, doves, and mice, listening to the jew's-harp in Farmer Milkweed's old hay-loft.



MUSIC IN THE HAY LOFT.

Drawn (by W. M. Cary) and Engraved for the American Agriculturist.

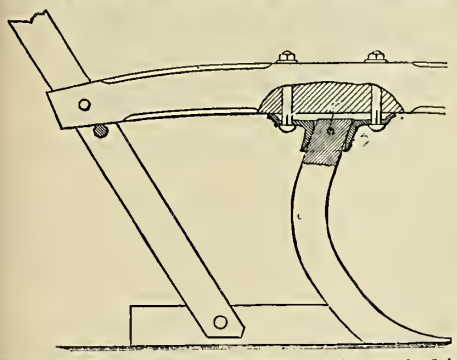
Our Tame Crow.

A man found a nest of four young ones and was about to destroy them, for though crows on the whole do more good than harm to the farmer, the visible concentrated injury done in a single corn field leaves a strong prejudice against them. But at the request of neighbors in a village near, these nestlings were spared; and after several unsuccessful attempts to destroy the wary parent birds, one of the youngsters was secured by a gentleman in the village and another by the writer, two being killed by accident. The survivors frequently visited each other. The first morning after receiving our pet he seemed quite at home, and rapidly devoured a handful of angle worms as fast as dropped into his open mouth, vociferously calling for more, until he was finally satisfied and contented. He was given a coop, and after a week or so it was left open, but he never left the premises except to soon return. He chose a roost on a tall oak near the house, and at early dawn lighted on the roof and pecked the shingles, and made all the noise possible, as much as to say, "wake up and give me my breakfast." He once came very near destruction when an old turkey gobbler got him under foot, but he was rescued in time; and again when a toddling cousin learning to walk fell upon "Dick," as we called him, and nearly squeezed him to death. When able to fly well he kept out of the way of these and other accidents.

Dick's methods of hiding things was very amusing. After covering a piece of food, for example, he would walk around it, cocking his eye, and if observing an exposed point he would lay a chip over the place, and again walk all around and examine the whole. He followed mother into the cucumber patch and imitated her in picking the fruit. Receiving a sharp rap for so doing he rolled on his back and threw up his claws in his fighting posture. She supposing him dead went on with her work. After sulking awhile he flew off to the fence and sat there angrily muttering curses. Soon after he revenged himself by removing the clothes-pins as fast as she placed them on the line, and letting the clothes fall to the ground, all the while uttering a harsh scolding sound. The old lady by a sudden motion caught and tied him to a stake. But when she was gone he got the string loose, and keeping clear of the clothes-line met us on the way home very cross and surly, but would not go near the house for a long time. A lady of the village having spread some clothes on the grass to bleach, Dick deliberately smeared his feet in a mud puddle and kept tracking all over the clothes until driven away. A neighbor shingling a barn left his knife sticking up in the roof. Dick seized it in his bill and flew off, and only dropped it after long chasing and hurling missiles at him. At another time he took great interest in the building of a boat, and frequently watched the operation. When the painting began Dick was particularly attentive. The man having gone into the shop Dick deliberately walked back and forth from stem to stern, filing the fresh paint with tracks, and then uttered a loud "caw" to call the owner's attention to his mischief. Dodging a stick hurled at him, he flew off in high glee.—Dick often went to the schoolhouse, and lingered around the outside during study hours, but every now and then tapped the window panes, to the amusement of the children but to the disturbance of good order. His wings took him off safely when any attempt was made to punish his intrusion. Numerous thefts in the village were believed to lie at his door, yet he was so adroit and cunning that no one seemed disposed to harm him, and so he lived on in his mischief, until he disappeared one day in late autumn, probably a victim to a sportsman's gun.

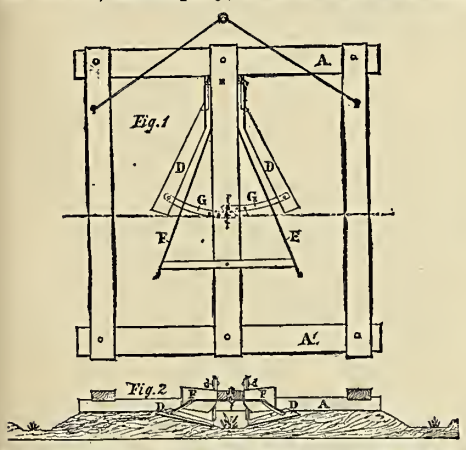
OUR RECORD
OF
Recent Agricultural Inventions.

Plow.—Geo. C. Avery, Louisville, Ky. Dec. 25; No. 290,959. The object of this improvement is to prevent the breaking of the cap plate of the plow standard by



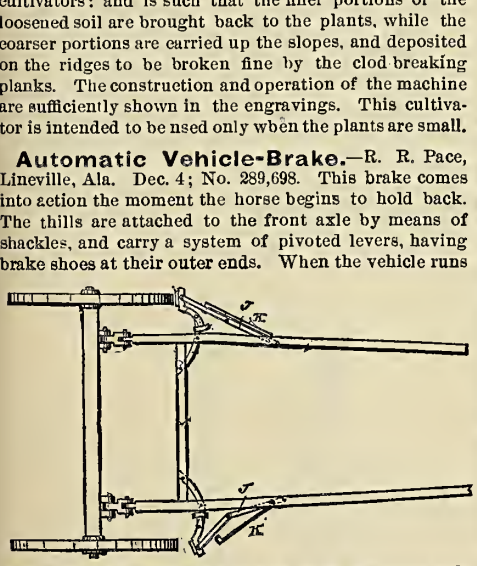
sudden shocks to the plow. To this end the standard is secured to the socket so as to have a rocking movement in it on the retaining pivot, thus distributing the strain between the socket and the braeing of the plow beam.

Cultivator.—Sharon French, Silver Lake, Kansas. Dec. 11; No. 289,824. This "Lister" cultivator is designed for use in the cultivation of crops planted in a hollow between two ridges. The riding planks *a*, *a*, break the clods and sods on the tops of the ridges, while the knives *d*, and scrapers *f*, loosen the soil and destroy



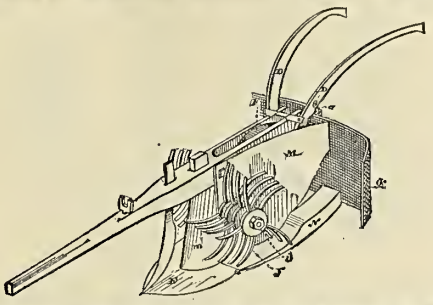
the weeds on the slopes, the knives are adjnsted by means of the arms *g*. The action of the cnltivator is outward from the plants, instead of inward as in ordinary cultivators: and is such that the finer portions of the loosened soil are brought back to the plants, while the coarser portions are carried up the slopes, and deposited on the ridges to be broken fine by the clod breaking planks. The construction and operation of the machine are sufficiently shown in the engravings. This cultivator is intended to be nsed only when the plants are small.

Automatic Vehicle-Brake.—R. R. Pace, Lineville, Ala. Dec. 4; No. 289,698. This brake comes into action the moment the horse begins to hold back. The thills are attached to the front axle by means of shackles, and carry a system of pivoted levers, having brake shoes at their outer ends. When the vehicle runs



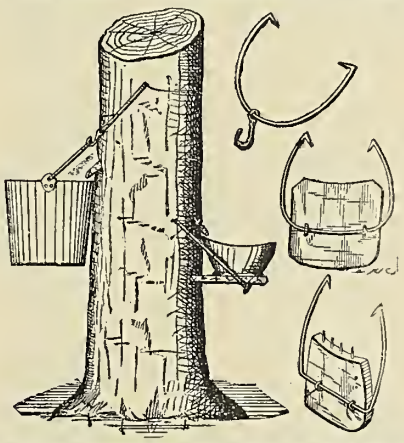
down hill and the horse has to hold back, the inner ends of the thills are swnng up against the axle, and the brake shoes are pressed against the wheels, If the brake is not to act, as in backing or turning, the braces *j*. *j*, are unlocked from the levers *k*, *k*, and yield so as not to bring the brakes to bear.

Potato Digger.—A. Adam, Reno, Nevada. Dec. 18; No. 290,305. The patented claims of this digger, consist in the means of driving the sifters with a positive motion; in means for adjusting the sifters; and in the manner of enclosing the gearing. The driving-wheel takes hold of the ground by a portion which projects through a slot in the bottom runner. It has an adjustable hearing, and by the medium of a belt, transmits its motion to the shaft of the sifters. The plow digs up



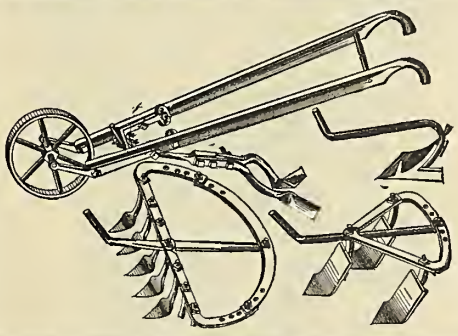
the patatoes, the side runners *n*, throw them up to the sifters which clean away the dirt, and the screen *o*, gathers them and prevents their scattering. The revolution of the sifters is positive and certain.

Sap Bucket Holder.—J. M. Lance, New Jerusalem, Ohio. Dec. 4; No. 289,662. The holder is a curved wire with hooked ends to catch the bark of the tree. Attachments for supporting and covering the



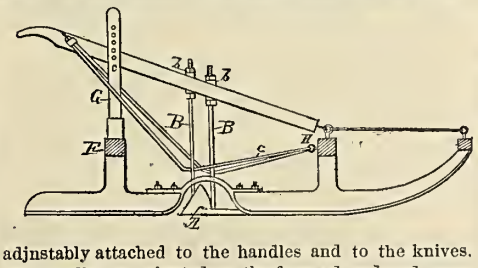
bucket are also included in the patent. Devices like this, if new, are sometimes valuable properties. The holder, and several ways of using it, are shown in the figures.

Hand Cultivator.—J. H. Thompson. Omaha, Neb. Dec. 11; No. 290,142. This cultivator and its attachments are clearly shown in perspective in the figures. The inventor claims as new, the perforated arm, and the



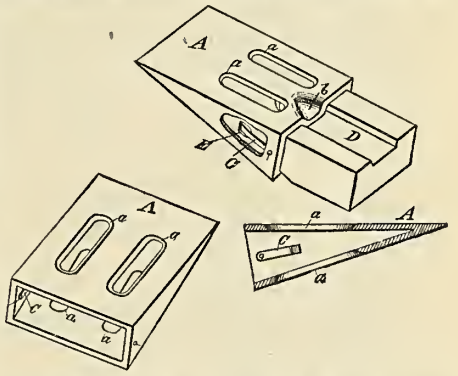
securing staple *k*, in combination with the cultivator frame, to which the various interchangeable implements may be attached, and so adjusted out of line so as to do work while the operator walks on the undisturbed soil.

Cotton Scraper and Cultivator.—W. C. Thompson, Covington, Ky. Dec. 25; No. 290,814. The knives *a*, one on each side of the machine, are fastened to the vertical braces *b*, and made adjustable both as to hight and inclination. The longitudinal braces *c*, are



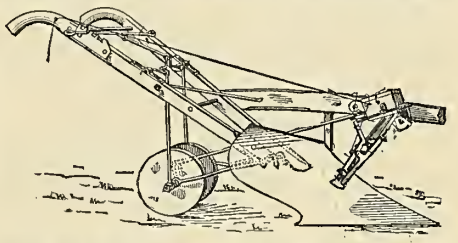
adjnstably attached to the handles and to the knives. The handles are pivoted to the forward end and move up and down in slots in the upright standards *g*, these standards being adjusted to move horizontally in a slot in the bench. By these connections and adjustments, the distance between the knives can be made to suit the requirements of the ground and the plants, and so that they will not only cut the weeds, but side up the stand at one and the same operation.

Plow Point.—Albert Ball, Canton, Ohio. Dec. 11; No. 289,797. This is a hollow plow point which may be attached and held firmly without the use of bolt or key, and yet readily removed and reversed when worn beveling. The point is made of malleable metal, only the solid edge being hardened. The plow-share point has a



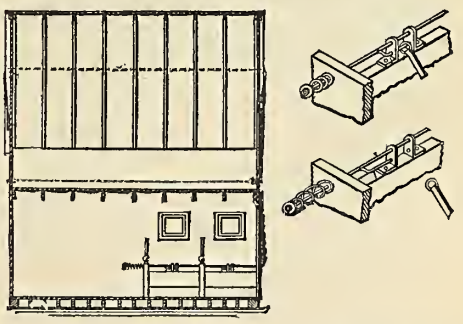
recess, *d*, into which the rear part of *a* is sunk for attachment. The long holes, *a*, allow the depression at *b* to be made without springing the point. When the point is worn the bent part may be sprung out and the piece turned over and re-attached.

Corn Planting Attachment for Plows.—Philip Dougherty, Fort Dodge, Iowa. Dec, 11; No. 290,006. This invention is designed to provide a convenient means for dropping seed corn in hills in advance of a turning plow, and in the furrow previously turned, so that the seed will be covered by the furrow slice as it is turned. The construction is clearly shown by the engraving. As the plow is drawn forward, the revolution of the wheels acting on the connecting bar,



causes the slide, to work the valves in the seed box, so as to drop the seed into the spout. The motion of the vibrating bar, operates the valves, by which the further movement of the seed is controlled. The spout is jointed so as to be adjusted to drop the seed in the onter part of the furrow, so that the plants will come up between the adjacent furrow slices.

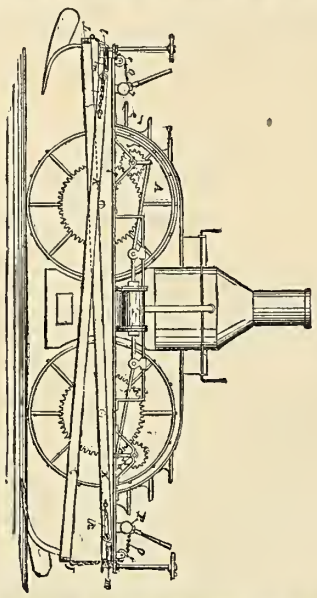
Stock Releasing Device.—Wm. Donlon, Eden Prairie, Minn. Dec. 4; No. 289,398. This invention is to he applied to stock barns, and consists of a series of rods, wires, chains, or ropes distributed through the barn, and provided with fusible or burnable parts, to be severed in the case of fire. This system is connected



with proper weights and springs, and also with the doors and the hitching straps of the animals, so that in case of fire, the animals will be set free and the doors opened for their escape. The details of the hitching device and its operation, are shown in the engraving; also a sectional view of a barn, with the system applied.

Steam Plow.—F. Pidgeon, Sangerties, N. Y. Dec. 4; No. 298,554. The engraving shows a longitudinal elevation of the plow, to which Mr. Pidgeon's improvements apply. Their object is to increase the traction of the plow and to facilitate the steering of it. The

plow frame can be propelled forward or backward; the plows at the (for the time) forward end are raised from the ground by means of windlass, *p*, and chain *o*, the bar, *l*, at the other end being lowered so that its plows will enter the ground. The wheels, *a*, grip the ground for traction. The guiding of the machine is effected by winding the chain, *m*, around the shaft, *n*, thus moving one of the bars, *k*, toward the forward end of the plow



frame in advance of the corresponding bar on the opposite of the frame. The plow can be guided from either end, but always by the plows at the rear end. If desired that end of the bar, *l*, farthest from the traction wheels can be raised higher than the nearer end to facilitate steering. The steering can also be facilitated by operating the wheels on that side only of the plow-frame from which the plow is moving.

Plow-Point.—Geo. P. Swift, Columbus, Ga. Jan. 22; No. 292,448. This invention consists in attaching to the front of a plow-point, of any desired



Fig. 1.

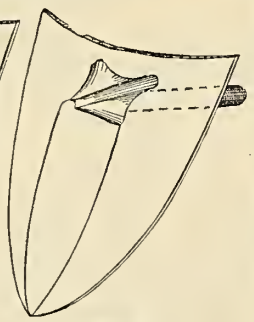
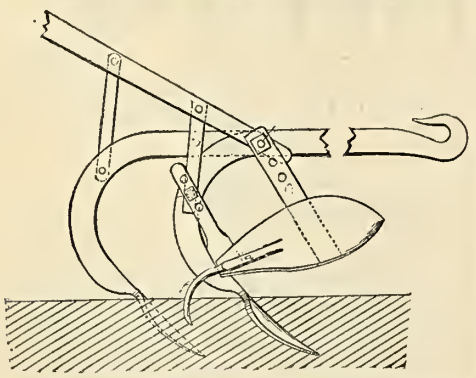


Fig. 2.

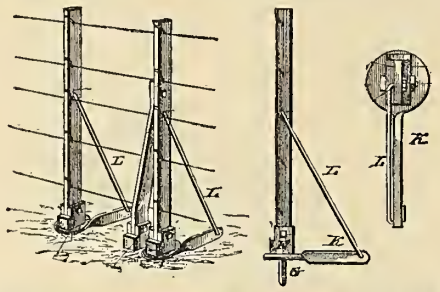
shape or size, a vertical blade, which is held in place by a fastening bolt having a grooved head to fit over the upper edge of the cutting-blade. A triangular head is preferred.

Cotton, Corn and Tobacco Fender.—M. F. Duncan, and R. E. Doyle, May's Lick, Ky. No. 290,009. This fender is intended to raise the leaves of plants, while soil is being thrown round the stalks by a



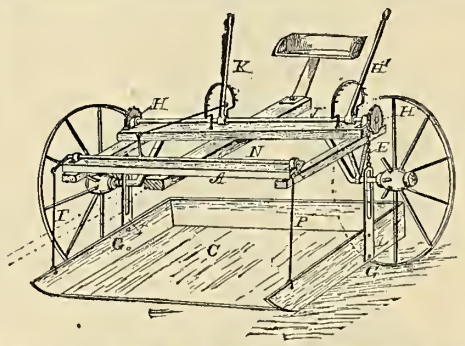
plow. Its form and the manner of attaching it are shown in the engraving. The point is slightly curved inward; the rear end curves upward and outward, and carries a hook to remove grass and weeds, and to loosen the soil close to the plants.

Farm and Flood Fence.—A. L. Cottrel, Sidney, Ohio. Dec. 18; No. 290,403. This aims to improve the construction of fences for lands subject to floods. It belongs to the class of fences supported by posts hinged at the bottom, so as to be tilted over by the



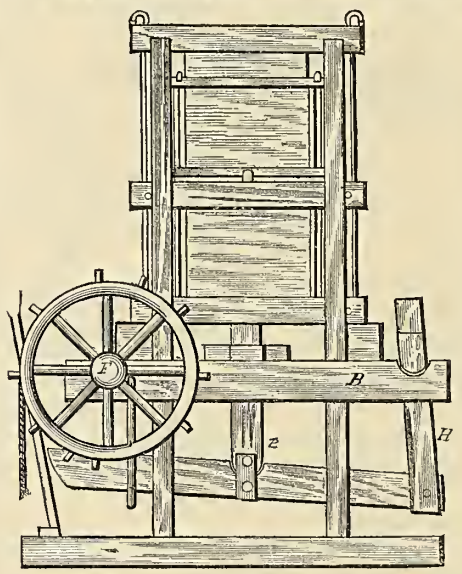
current when submerged. The special features of Mr. Cottrel's post are shown in the engraving. He claims the socket as constructed, into which a flat post is inserted and hinged. The twisted bottom-bar *k*, a socketed block secured in the ground to receive the point *g*, and the hooked and hinged brace *l*, supporting the post as shown.

Clover-seed Harvester.—H. H. Spears, Paris, Ky. Jan. 22; No. 292,377.—The object of this invention is to improve the means of raising, lowering and inclining the bed of a clover-seed header. The toothed por-



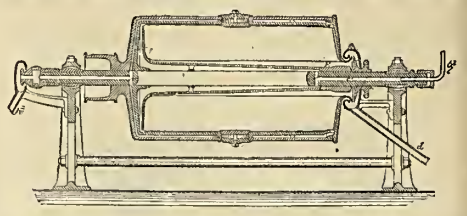
tion of the header is not shown in the engraving. The invention claims the combination of the frame *a*, mounted on wheels, the cross shaft *j*, provided with a sprocket wheel *h*, on each end, the suspension chain *e*, the slotted guides *g*, the body *c*, the lever h^1, rigid on the shaft, and the lever *k*, loose on the shaft. The rock-shaft *n*, and its connections, and the suspension rods *p*. The operation of these parts will be readily seen from the engravings.

Baling-Press.—C. C. Warren, and W. H. Oliver, Beauregard, Mich. Jan. 1; No. 291,489.—The inventors' aim is to provide a simple, easily made, portable and



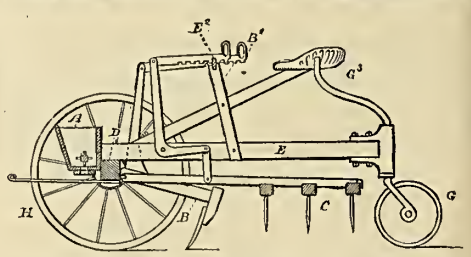
compact press for baling hay, cotton, moss, and other fibrous material. The figure shows the construction clearly. The patent covers the compound lever, comprised of the parts *f*, *h*, *b*, *p*, and the driving wheel with its connections.

Centrifugal Creamer.—W. C. L. Lefeldt, Schoeningen, Brunswick, Germany. Jan. 29, '84; Nos. 292,661, and 292,662.—These patents cover improvements in the process and means of separating cream from milk by centrifugal action. The cream is now withdrawn from the milk by a continuous process, the feed of fresh milk, and the discharge of skimmed milk going on at the same time. The engraving shows a longitudinal central section through the most approved form of apparatus, the vessel rotating on a horizontal axis while the cream is skimmed off at one end, and the



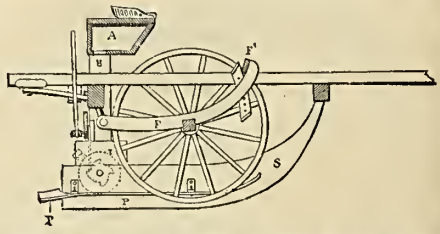
skimmed milk removed at the opposite end, the fresh milk being supplied through the axis at the creaming end. There are other forms of apparatus, which are operated vertically; and others open at the top and of simpler and less costly construction. In the engraving, *g* is the inlet pipe for new milk, *d* the outlet pipe for cream, and *h* the outlet pipe for skimmed milk.

Combined Seeder, Plow, and Harrow.—F. S. Armstrong, Secor, Illinois. Jan. 1; No. 291,125. The engraving shows a sectional elevation through the middle from front to rear. The T-shaped frame *d*, *e*,



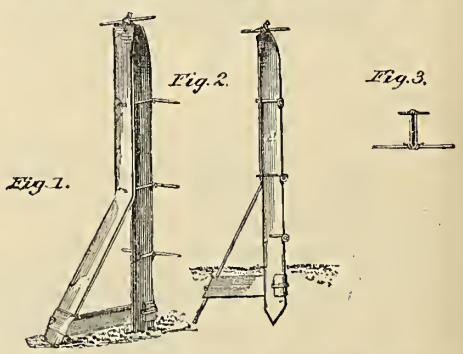
is supported by the driving-wheels *h*, *h*, and a guiding-wheel *g*. The shaft of the front wheels operates the mechanism of the seed-box *a*. The plow-frames are pivoted to the bar *d*, as also are the harrow frames *c*. The machine is guided by the wheel *g*, and the lever g^3. The plow and harrow parts may be used separately or together. The claims of the patent cover the parts named, with their connections, the lifting levers and notched bars b^2 and e^2 and the seat.

Corn-Planter.—W. G. Selby, Princeville, Ill. Jan. 1; No. 291,093.—The claims of this patent cover the pivoted frame *f*, f^2, in combination with the supporting



wheels, having bearings such that when the driver rests his weight on the free end *f*, the planter is raised out of the ground, and supported on the wheels; also the construction of the seed-box *a*, the spouts *b*, the shoes *s*, having an adjustable gauge-plate and packer *p*, *p*, the seed-dropping disk *j*, and its operating mechanism.

Fence-Post.—Fannie S. Smith, Topeka, Kansas. Jan. 15; No. 292,141. This improved fence-post is made out of strap iron, bent as shown in the engrav-



ings, and notched and pierced for binding wires and fence wires. The construction is extremely simple and cheap, the disposition of the parts being such as to secure stiffness with economy of material.

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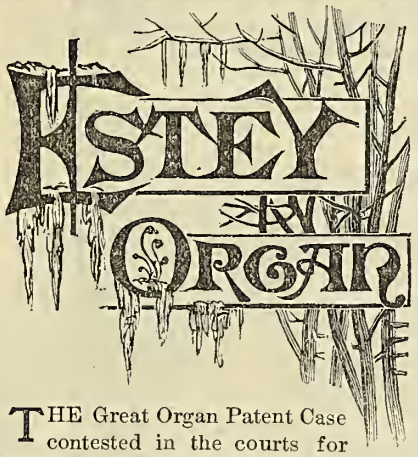
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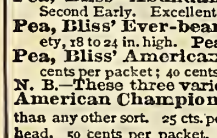
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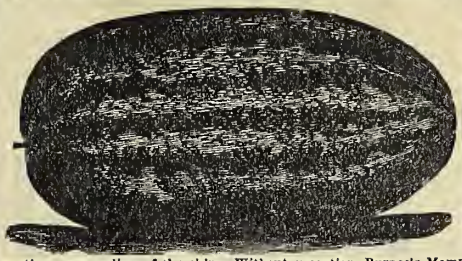
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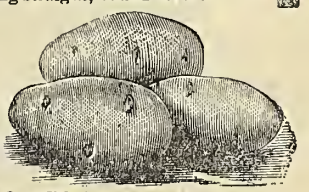
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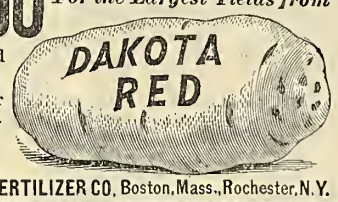
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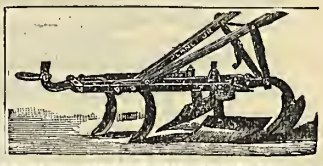


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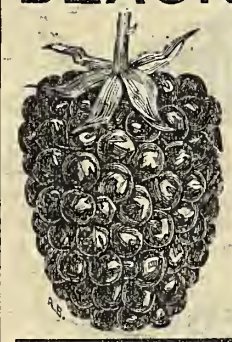
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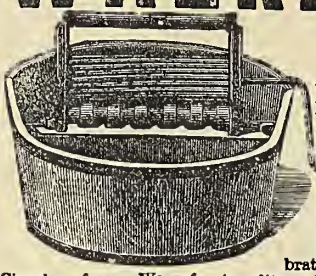
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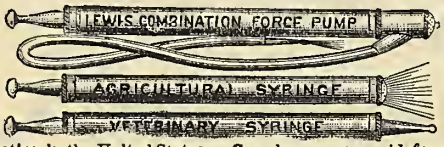
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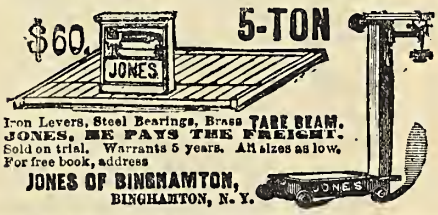
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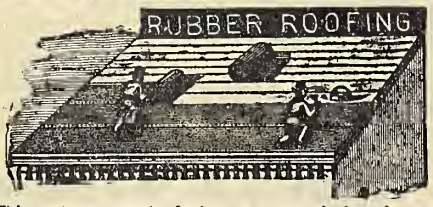
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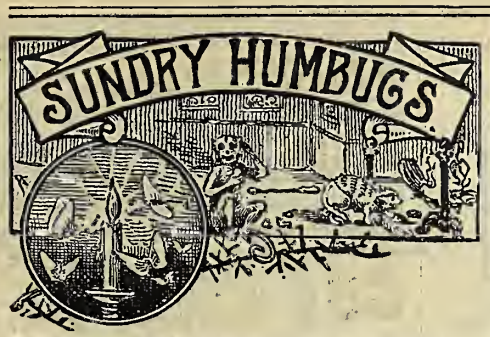
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We will with pleasure send you a sample copy of our **SEMI-MONTHLY GLEANINGS IN BEE CULTURE,** with a descriptive price-list of the latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all books and journals, and everything pertaining to Bee Culture. *Nothing Patented.* Simply send your address on a postal card, *written plainly,* to **A. I. ROOT, Medina, Ohio.**



The Bogus Agricultural Journals.

All persons who in a foolish moment have been persnaded to purchase tickets in the bogus lottery schemes of bogus Agricultural Journals, and who have now become satisfied that they have beeu duped, will please send their tickets, their circulars and full particnlars to this Humbug Department. The Editor proposes to fully ventilate this latest dodge for defrauding farmers, and desires the co-operation of those who have been victimized. We are assured of the aid of the Post-office Department. The scamps will not be able to employ the mails much longer, as the bill shutting them ont has already passed the House and will be through the Senate probably this week. President Arthur, who has already taken such decided ground against all lottery schemes, will of course immediately sign this bill, which bars the bogus Agricultural journals out of the Government mails.

Mr. Gaylord, so long the effieient and popular Assistant Postmaster at New York, informs us that the "sample copy" business is to be snppressed. Spnrlous journals will no longer be able to send out to the rnral dlstricts throngh the mails as third class matter "sample copies" with displayed descriptions of lottery drawings or worthless wares for sale. The act before Congress goes a step further, and says these spurious sheets *cannot go through the mails in any shape.*

Scoundrels to the Back-bone

H. M. Stump, Union City, Ind.—J. Goldsmith & Co., who propose to distribnte two hundred and sixty-six thonsand dollars cash, in a lottery drawing March 31st, 1884, are sconndrels to the back-bone. Turn to your file of the *American Agriculturist* for 1883, page 205, and yon will find a detailed exposnre we then made of these chaps who advertised a similar colossal drawing for March 15th, 1883. Continue to send to us all such circulars you receive from the professional rascals who prey upon the farming community.

Justice on Their Track.

The Canadian Parliament has now taken hold of the St. Stephen, N. B., Lottery rascals, whose circulars have been sent to so many of our snbscribers, and whose operations have so often been shown up in onr Hnmbug Columns. An Ottawa dispatch informs us that the Attorney General of the Province will deal with the offenders as they deserve. It adds, "No prizes have ever been distribnted, and the affair is a gigantic swindle," all of which has been repeatedly said for months by the *American Agriculturist.* These St. Stephen's swindlers having been driven by onr exposures from the United States resnmed operations in Canada.

The Counterfeit Money Fiend.

That dispenser of the "qneer," whose career we have traced and recorded for so many years, and who has been, until now, a pecnliarly American institntion, has also gone across the border with all his confidential letters, and detailed introductions for the fly to meet the spider at the hotel. The same thousand dollars in bogus money for a hnndred in good bills; the same newspaper slips, showing that the counterfeit can not be detected even by experts, all have gone. The Dominion papers give accounts of the introduction of this nnisance that are amusing reading to those of ns who have kept the run of this miserable swindle. If we may langh at the excitement the man with the "qneer" has cansed, this thing is to be said in favor of the Canadians; the very first "connterfeit money" chap who went over there and set his little trap, instead of catching any victim, was canght himself, and at last accounts was in jail awaiting trial, thanks to the shrewdness of a reporter of the "Toronto Spectator."

What the Chief of Police Says.

Under varions names, the art of coloring photographs is advertised as a "nice light work for ladies and yonng men at their own homes." One of our subscribers, before he answered the advertisement of a concern in Boston, Mass., took the precaution to make inqniry of the Chief of Police of that City. The note came back indorsed by that official: "Shonld not advise sending any money." If all who are tempted to invest in donbtful enterprises wonld be eqnally cautious, we should have fewer complaints from the victims of swindles.

"The Matrimonial Bureau of Ill."

A snbscriber in Lafayette Co., Ark., sends us the "prospectns" of the above named "Bnreau," and asks: "What can you say of its reliability?" We only know of the "Bureau," by what it says of itself. It says it was established to "snpply a want long felt in the commnnity."—Such things always say that. It adds: "its power for good is simply inexpressible."—bnt not a word about its power for evil, though when we are told that its founders are citizens of "transcendent respectability," we ought not to think of evil. This Bnrean proposes to fit out men with wives, and women with hnsbands. All can secure the services of this "Bureau," by enclosing an entrance fee of five dollars. Enclose a photograph, together with a three-cent stamp for retnrn answer, and "an answer to the following questions."—The qnestions are, name, nationality, and a long string of others, including the important one of "means." If one would procure a wife as he would buy a horse or a cow, probably this Bnreau might help him. We are so old-fashioned in our notions as to think that love, altogether ignored in this prospectns, should have something to do with marriage. This "Bnrean" puts the whole thing down on a trade basis—money down, five dollars. "Compensation for final services to be determincd by amount of services rendered, and other considerations germane to the transaction." That last shows, that even in Bureau matrimony, one has, so to speak, "to go it blind," and never knows what it will cost him. The whole thing is too absnrd for serions consideration. Those who look npon marriage as a lottery, may take their chances in snch a scheme. Those who take a higher view of it, will recoil from any snch machinery.

An Old Tune with New Variations.

We have often allnded to the offers to sell counterfeit money as the oldest of swindles. This appeared soon after the first issues of Greenbacks, and has been kept np in one or another form ever since. The latest manifestations of this antiqnated swindle, shows an amount of ingennity that entitles it to a brief mention. A slip with every appearance of having been cut from a newspaper, bears on one side an item from Washington, showing the "Deficits in Uncle Sam's Cash Box," in which is the item: Counterfeit notes received in Redemption Division, $129,340,00, and losses of packages stolen, etc., to which is added a noto that connterfeiting "is redneed to an art," and that "onr Treasury officials fail to detect counterfeits from the genniue, the resemblance is so close." On the other side of the slip is a long letter from Washington, setting forth the loose management in the Bnrean of Engraving and Printing, charging that counterfeiters are in collusion with the Bureau, and intimating that duplicate plates from which the notes are printed, have been allowed to go in the possession of counterfeiters, and making serions charges against the whole management of this department of the Treasnry. This newspaper slip has every appearance of being gennine. The cntting is carelessly made, showing parts of columns each side of the column containing the items. At the heading, or top of the page, is the running title, "Thnrsday, June 1, 1882," and on the reverse is the same, "Thursday, Jnnc 1, 1882." This shows the thing to be a frand. Take any New York daily, or other paper that nscs these "running headings" at the top of the page—indeed, take this very page. *American Agriculturist* on this page, is, on the next page reversed—that is, *American* on this page, is backed by *Agriculturist* on the opposite page, as may be seen by holding it np to the light. A very ingenious trick, but spoiled by trying to make it too nice. This clipping was sent to a long-time reader, now in Iowa, with the following note, which is such an improvement on the long ronndabont letter sheets of former times, that we give it in full:

"Dear Sir.—Can you use such goods? I will supply you with them if you can. If I have made a mistake in asking the question, say nothing about it, but let the matter drop. *I am a friend to a friend, and mean nothing wrong.* Don't sign your name to letters, always nse No. 1, I will know who it is from. Be sure to return this letter and strip, for *I will answer nothing unless they are returned.* Yours truly,"

Well James, as we do not advertise in these pages, we will withhold the rest. This pretended secrecy is very amusing.

THE STRANGEST OF ALL IS THIS.

Here is a partner in a large bnsiness house in a flonrishing Iowa town, to whom this oldest of swindles is entirely new. He in all sincerity asks us to call the attention of the Post Master of New York City to the matter, that the sender may be apprehended, and adds: "If I can be of any service to yon or the Department, please command me," and he does not say, "please don't nse my name." Our friend would be less in earnest if he knew there was no counterfeit money in the case, bnt it is a trap for those who think there is, and are willing to bny and circulate counterfeit grecnbacks.

New Benefactors of the Human Race.

For several months there has been an nnusual dullness, an entire lack of novelty, in the medical line. At present there are indications of a revival, and we may look for, in nostrums, as in dress goods, new styles suited to the season.

INNMAN HAS RIVALS.

For these twenty years or more the Rev. Innman has had an almost entire monopoly of the free recipe business. His few competitors have been of short duration, and Innman has been ieft undisturbed to send out his bogus recipe written in a burlesque Latin, and pocketed the dollars for the stuff which could not be procured with the recipe, and which it was never intended should be.

THERE IS NOW A NEW-COMER

in the recipe business; his name it is Lanrence, his home it is Brooklyn, and the peculiar infirmity he wrestles with is, Catarrh. The benevolent Laurence qnite outdoes Innman, who only sends one recipe; he offers two, and both free of charge. The sufferer, or victim, having received the recipes takes them to the apothecary to have the healing stuff prepared, and is told

THE SAME OLD STORY.

The drugs upon which the invalid had based his hopes of relief, if not of eure, are not to be had. As Betsey Prigg said of Salry Gamp's Mrs. Harris, "There ain't no sich pusson." The names have no meaning, save to the inventor—they stand for nothing known to science, in fact are made use of "the same with intent to deceive." There are two of these Catarrh prescriptions, one for stuff to be applied to the nose, as a donche, the other to be administered internally. We have room for but the last named, but the other is equally absnrd. The recipe is:

Extract Arabian Calla Root	1½ oz.
Comp. Tinc. Arabian Red Lava Flowcr	2 oz.
Ferro Citrate Calcium	1 drm.
Bisulphate Quineeia	4 drms.
Potassi Iodide	1 drm.
Phosphic Salicylate	1 drm.
Glycerine	2 oz.
Verium Ferri	I. S. Flat 0. 1.

The edncated apothecary or chemist will find much amusement in this attempt to appear scientific.

Of conrse the maker of that precious prescription knew that it could not be prepared, and the usual sequel follows. He would not have people suffer from Catarrh jnst because druggists are unable to prepare his prescriptions, so he goes and does it himself, and he informs those who have sent for his free prescriptions that the stuff can be had of him in a box.—"Free, like the prescription?" will be asked. Well, not quite free. A mere trifle of $6,00 is asked, to cover cost, etc., that's all. It is easy to say that one who has sent to an unknown advertiser expecting to get in return something of value for nothing, deserved little sympathy if he was disappointed. But an invalid will catch at any straw that promises relief, and it is upon this weakness that the quacks trade. One of our correspondents suggests that this free prescription business is open to the charge of obtaining money under false pretences. It does look that way. The offer to send a preseription free, is only a bait to induce people to buy the bottled stuff. The public have had more than twenty years of this nonseuse with Innman and still they are ready to run after any new-comers who play the same old trick. Another chap has started in Brooklyn with his

"CONSUMPTION CURED,"

and cnred on the same free prescription plan. He is an old physician and he had "some stuff placed in his hands by an East Indian Missionary." It is always a missionary, and he always hails from the East Indies. He "feels it his duty"—they all do—"to make it known to his fellow sufferers." Then follows the offer of a free prescription. It is safe to predict that whoever sends for this, will receive a senseless jargon of made up names, and that an offer to furnish the medicine ready made, at a round price, will follow.

Cautionary Signals.

Bogus vs. Genuine Life Insurance.

Inquiries are made of ns concerning a "Mutual Aid Society" in a Western city. Societies called "Mutual Benevolent" or "Mutual Aid" are common in cities, its

members belonging to the same trade or occupation, or drawn together by a common religious belief, and, as a rule, they are very useful. The Society in question appears to be a life insurance company, with a difference. In the regular companies the losses are paid at once from an ample fund, while in the present scheme when a member dies the amount of his insurance is assessed upon the survivors. There is nothing in the prospectus of this Association to show that it is chartered or that its officers give bonds for the proper performance of their duties. The directors may be highly esteemed at home, but they are not widely known abroad, and must not be surprised if people are cautious. To those who ask us about investing in such an Association we say: its safety depends entirely upon the personal character and responsibility of the management, and unless they can satisfy you as to these, wait a bit. There are abundant opportunities for insuring in offices, about which no questions need be asked, as they are as safe as the United States Treasury or the Bank of England. If you wish to insure your life, and too much forethought cannot be exercised in that direction, take out a policy in some such undoubted Company as the New York Life Insurance Company, for example, which has a surplus of more than five million dollars. Do not incur any risks or waste any time with new, untried, or questionable Companies, but insure direct in the New York Life, where safety, reliability and security are assured.

A Car Load of Cattle for a Fat Stock Show.—Eight, ten, and twelve head of one, two, and three year old cattle in this order, have been required to make up a car-load exhibition for a prize at stock shows, but the Illinois State Board of Agriculture has now decided to adopt five head only of all the above ages. We think this a much more reasonable decision, as it accommodates small breeders who often before were not able to make up a greater number, as the owners of a numerous herd could easily do. Now those possessing a moderate number of cattle can have an equal chance with those possessing large herds. Parties of this kind should always be favored as much as possible, in order to encourage and help them in their endeavors at improvement, for this is much harder for them to accomplish than the rich, who are overflowing with an abundance.

Everlasting Flowers.—An article on Everlasting Flowers elsewhere (p. 165), has special reference to the Helichrysums. Besides these there are several others well worth cultivating. They have no common names, save the general one, "Everlasting," hence we are obliged to use the botanical names. Among the desirable kinds are *Acroclinums*, with white and delicate pink flowers. *Rhodanthe*, from New Holland, is the most delicate of all Everlastings, and like the preceding, of a charming pink color. *Heliotropium Sanfordii* has small flowers, resembling those of yarrow, but golden yellow. *Xeranthemum annuum*, has large and purple flowers. All we have named belong to the Composite Family. The *Gomphrenas* or "Globe Amaranthus," are often included among the Everlastings. They have small globular heads of various colors, which, if gathered early, are useful for winter decoration.

Nasturtium is the botanical name of a genus of plants, not at all related to the Nasturtium, or "Sturtion" of the gardens. Its common name should be "Indian Cress." Its botanical name is *Tropæolum*. The two common species are *T. majus*, a climber, and *T. minus*, a dwarf, bushy sort. These plants are useful and ornamental. The flowers in both are brilliant and showy, while the unripe seed pods are used to make an aromatic pickle. The tall kind is usually grown for its pods, but those from the dwarf species, aside from being smaller, are equally useful. The varieties present numerous colors, for which we must refer to the catalogues. *Tropæolum peregrinum*, on account of the peculiar shape of its flowers is called "Canary-bird flower," and with the tall kind makes an excellent contrast; give these beautiful plants a very rich soil, and sow the seeds or transplant after you are sure cold nights are over.

His Apple Orchard.—"B" writes us: "I have an apple orchard of five acres, set more than twenty years ago. The trees are thirty feet apart, each way. I broke it up two years ago and planted corn each year since; it was well-manured and the sod is well rotted. What is the best thing I can do with it?"—We assume that our correspondent is a farmer. The best thing he can do for his orchard, and for his general farm economy is to sow clover, and convert his orchard into a pasture for his pigs. This will not only produce pork, but the soil of the orchard will be greatly increased in fertility. "B" asks about sowing grain to cut for fodder. By no means; no crop should be grown in an orchard, the larger share of which will be carried off. By pasturing with swine all but a very small proportion of the clover crop will be left upon the soil to enrich it.

FEARLESS.

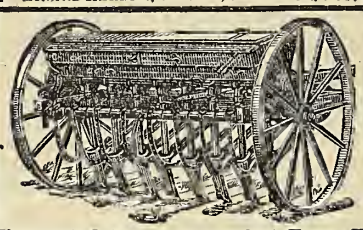


VICTORIES UNEQUALED

The only machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last Gold Medals given by the New York State Agricultural Society on Horse-powers and Threshers; and is the only Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the standard machine of this country. Catalogue sent free. Address

MINARD HARDER, Cobleskill, Schoharie Co., N. Y.

The Pennsylvania Force-Feed Fertilizer Grain Drill.



Warranted the most perfect Force-Feed Fertilizer Drill in existence. Send for circular, A. B. FARQUHAR, York, Pa.

Pennsylvania Agricultural Works, York, Pa.

Farquhar's Standard Engines & Saw Mills.

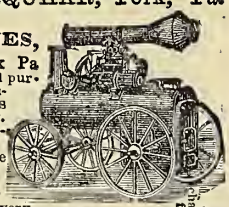


Address, A. B. FARQUHAR, York, Pa.

STEAM ENGINES,

A. B. FARQUHAR, York Pa

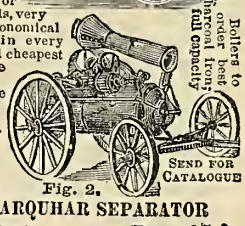
Cheapest and best for all purposes—simple, strong and durable. SAW, GRIST MILLS AND MACHINERY generally. Inquiries promptly answered. Send for Illustrated Catalogue



Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world.

Fig. 1. Fig. 1. is Engine in use. Fig. 2 ready for use.





Boilers to order, best Iron, full capacity

SEND FOR CATALOGUE

Fig. 2.

THE FARQUHAR SEPARATOR

(Warranted.)

Pennsylvania Agricultural Works York, Pa.



Horse Powers, Engines, Saw Mills, Cultivators, &c., &c.

Lightest draft and most simple, economical and perfect in use. Wastes no grain cleans it ready for market.

Address A. B. FARQUHAR, York, Pa.

FARQUHAR KEYSTONE CORN PLANTER

Warranted the best corn dropper and most perfect force-feed fertilizer distributor in the world. SEND FOR CATALOGUE. Address A. B. FARQUHAR, York, Pa.



THE S. R. NYE IMPROVED

BAY STATE RAKE

TRY IT! and you will use no other.

COSTS LESS for REPAIRS. Circulars free.



ITS LEADING MERITS ARE

That it will not scratch your ground. Needs no adjustment, but will rake clean on all surfaces. Will not scatter at the ends. Will form a windrow in heavy or green grass. Is easily held down while at work. Will dump easily. Will ride easily. Will turn easily. Will make less noise, and is the most expensively built and handsomest Rake in the market.

BELCHER & TAYLOR AGR'L TOOL CO.

CHICOPEE FALLS, MASS.

ACME

PULVERIZING HARROW,

CLOD CRUSHER AND LEVELER

SEE ADVERTISEMENT ON PAGE 183.



STOP THIEF!

1 oz. to 10 lbs. sold at Hardware or by Express on receipt of $1.50. Address Jones of Binghamton, Binghamton, N. Y.

REMINGTON

SHOVELS,

SCOOPS, SPADES,

Made in the Best Manner, by skilled WORKMEN.

Remember that our Goods are always RELIABLE.



SOLID STEEL.

Remington Agricultural Co.,

ILION, N. Y.

New York Office, 118 Chambers Street.



THE DAVIS

STUMP PULLER

Received Centennial Medal.

Is now in use in Canada and nearly every part of the U. S.

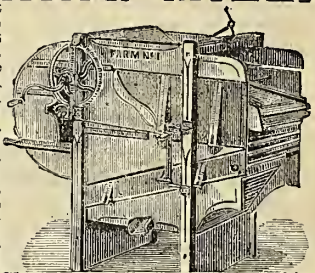
LIFTS 20 to 50 TONS.

Stands on runners, worked by two men. 5 Sizes. Prices $35 to $70. Circulars free. Manufactured by H. L. BENNETT, Westerville, Franklin Co. Ohio.

CENTENNIAL

FANNING MILL.

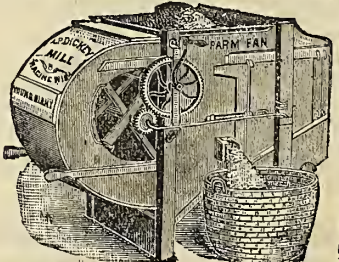
The best mill in the world. It separates Oats, Cockle and all foul stuff from wheat. It is also a Perfect Cleaner of Flax, Timothy, Clover, and all kinds of Seeds. The great improvement over other mills is that it has Two Shoes. It is especially adapted to warehouse use. Send for descriptive Circular and Price-List.



S. FREEMAN & SONS, Racine, Wis.

THE CELEBRATED

"A. P. DICKEY" FANNING MILLS



For Farm and Warehouse use for all kind of Grain and Seeds. These Mills are used in every corner of the civilized world, and for cleaning almost everything. They are guaranteed to be superior in all respects to any other Mill made.

Address DICKEY & PEASE, Manufacturers, Racine, Wis.

[This is the Firm that makes the Two Section Cast Iron Field Roller and "Peerless Corn" Sheller. Their goods are always considered among the best made.]—EDITOR.

AHEAD OF ALL COMPETITION.

1884.

THE PHILADELPHIA

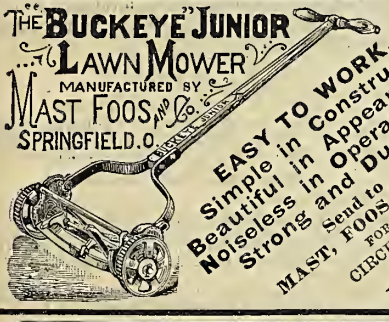


LAWN MOWER.

FOURTEEN SIZES FOR HAND USE.
Weighing from 21 to 51 lbs.
THREE SIZES FOR HORSE POWER.

GRAHAM, EMLEN & PASSMORE,
Patentees and Manufacturers.
631 Market St., Philadelphia, Pa.

THE BUCKEYE JUNIOR LAWN MOWER
MANUFACTURED BY
MAST FOOS & Co.
SPRINGFIELD, O.



EASY TO WORK,
Simple in Construction,
Beautiful in Appearance,
Noiseless in Operation,
Strong and Durable.

Send to MAST, FOOS & CO., FOR CIRCULARS AND PRICES.

ACME
PULVERIZING HARROW,
CLOD CRUSHER AND LEVELER.
SEE ADVERTISEMENT ON PAGE 183.

Old Reliable Stover Improved.



We are the Sole Owners and Manufacturers of the Stover Pumping Windmills for pumping water for Railroads, Villages, Suburban houses, Lawns, Dairies, Brick Yards, Draining, Irrigating, etc., as well as Geared Windmills of all sizes, for running Grinders, Shellers, Saws, etc. Also Feed Grinders operated by Pumping Windmills. Corn and Coh Double-faced Grinders with Sweep, Corn Shellers. Wood Saws, Corn Cultivators, and Implements generally.
FREEPORT MACHINE CO.,
FREEPORT, ILL., U. S. A.



THE PERKINS'
Wind Mill

is the Strongest and Best Self-Regulating Wind Mill made. Full instructions for erecting sent with the first mill. **All Wind Mills warranted.** For Circulars and Prices address
The Perkins' Wind Mill & Ax Co.,
Agents wanted. **Mishawaka, Ind.**

7,000 CHALLENGE WIND MILLS.



IN USE IN EVERY State and Territory of the U. S. It is a sectional wheel, has been made by us for 15 years, and has never blown down without tower breaking, a record no other mill can show. **MILLS SENT ON 30 DAYS TEST TRIAL. BEST FEED MILLS, CORN SHELLERS, ETC. GOOD AGENTS WANTED** in all unassigned territory. Catalogues free. **CHALLENGE WIND MILL AND FEED MILL CO.**, Batavia, Kane Co, Ill.

THE OLD RELIABLE HALLADAY
STANDARD WIND MILL
27 YEARS IN USE.



GUARANTEED
Superior to any other make.
17 Sizes-1 to 40 H. Power
Adopted by U.S. gov. at forts and garrisons and by all leading R. R. Cos. of this and other Countries.
Also, the
Celebrated I X L Feed Mill,

which can be run by any power and is cheap, effective, and durable. Will grind any kind of small grain into feed at the rate of 6 to 25 bushels per hour, according to quality and size of mill used. Send for Catalogue and Price-List. Address
U. S. WIND ENGINE & PUMP CO. BATAVIA ILL.

Stockbridge Manures.

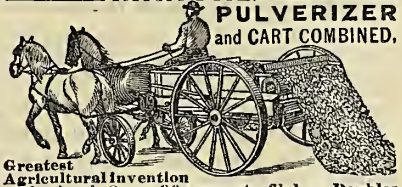
PRICES REDUCED. STANDARD MAINTAINED.

The Massachusetts Fertilizer Inspector's Valuation of STOCKBRIDGE MANURES for the past seven years Average $4.45 per Bag.

The Average Price for 1884 will be $4.50 per bag, or $5 a ton less than last year.

In buying a fertilizer, its quality and by whom manufactured should be considered along with the price per ton. A ton of good English hay is considered by most farmers cheaper at $20 than a ton of bog meadow hay at $10; and for the same reason the Stockbridge Manures, which are made largely from chemicals, and are very concentrated, are cheaper at the prices asked than many fertilizers at half the price. They have stood the test of the field and State Inspectors for nearly ten years, and have been found the most *reliable* and *richest* fertilizers offered in the market. The fact that they have been well made in the past should be a sufficient guaranty of their strength and purity in the future; but, notwithstanding this, we are still under bonds to Prof. STOCKBRIDGE to maintain their standard. Send for pamphlet (mailed free), to
BOWKER FERTILIZER CO.,
43 Chatham St., Boston, Mass.

KEMP'S MANURE SPREADER
PULVERIZER and CART COMBINED.



Greatest Agricultural Invention of the Age! Saves 90 per cent. of labor, Doubles the value of the Manure. Spreads evenly all kinds of manure, broadcast or in drill, in one-tenth time required by hand. Illustrated Catalogues free.
KEMP & BURPEE MF'G CO., Syracuse, N. Y.

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SOLUBLE GUANO; DISSOLVED BONES; ACID PHOSPHATE; ASH ELEMENT; PHOSPHATE FLOATS; PURE GROUND PHOS. ROCK.

All of Best Grade and Very Cheap.

For Terms, Illustrated Hand-Books, Agricultural Primers, and good articles on Floats, Ash Element, Peas and Kainit, address the
ASHLEY PHOS. CO., Charleston, S. C.

Send for Circulars and Price-List. **AGENTS WANTED.**

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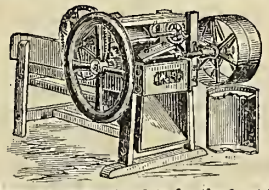
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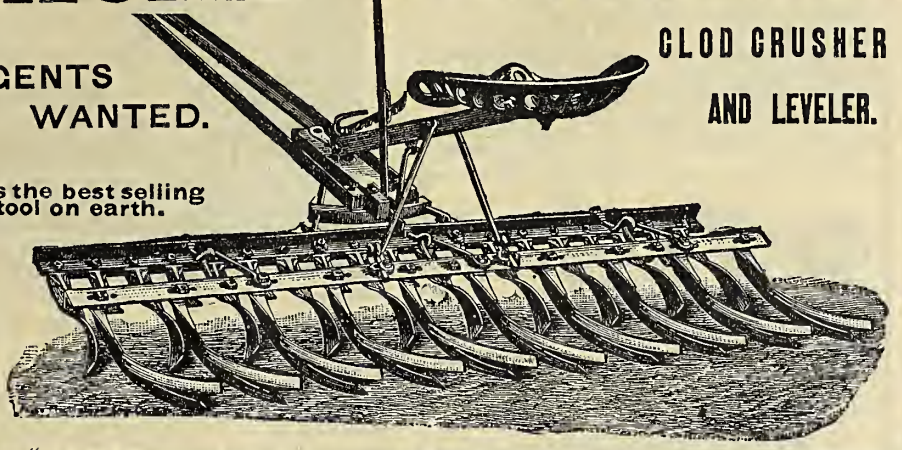
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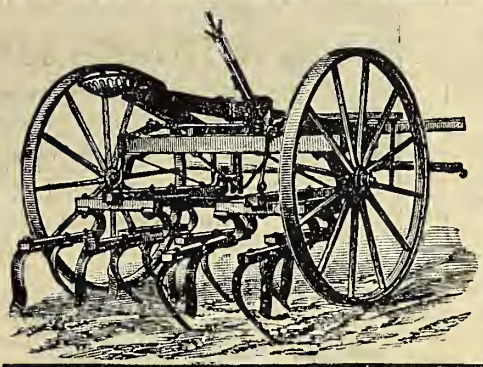
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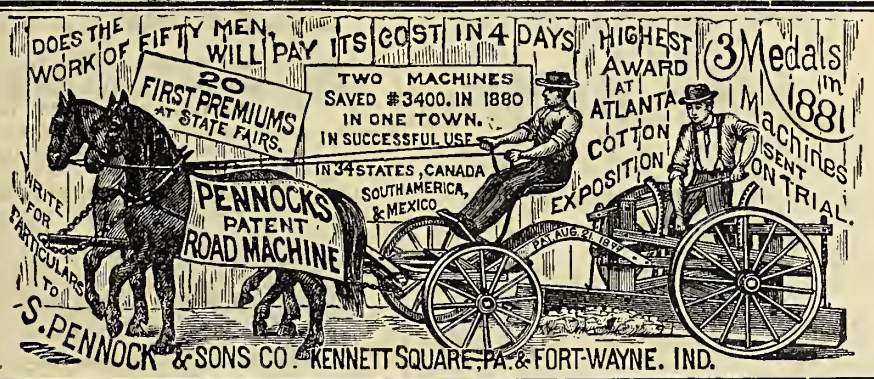
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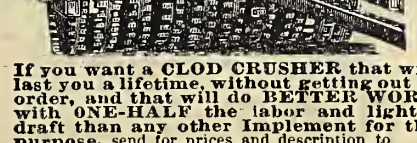
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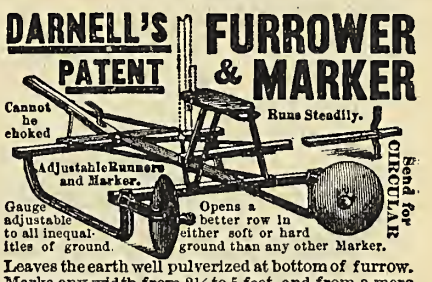
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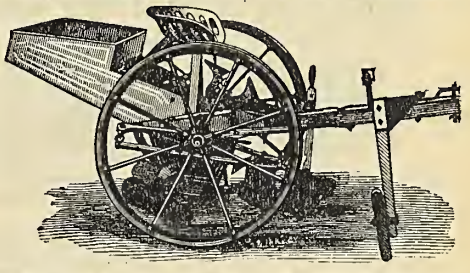
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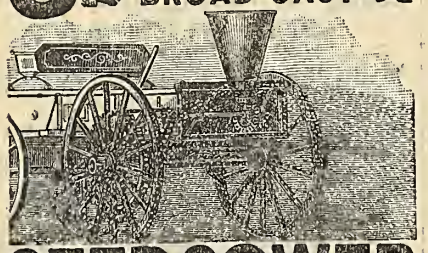
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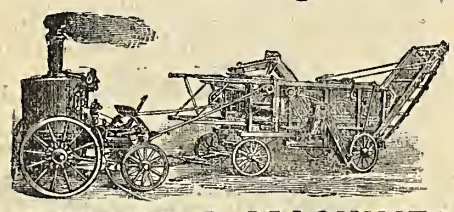
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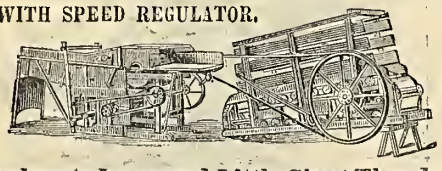
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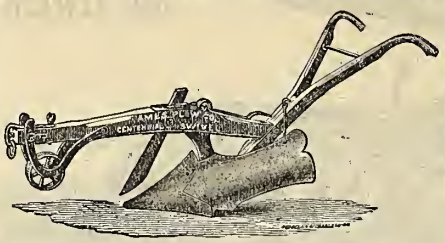
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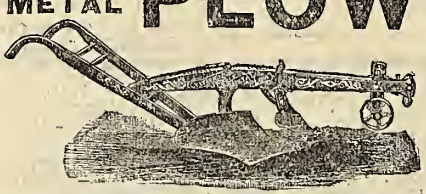
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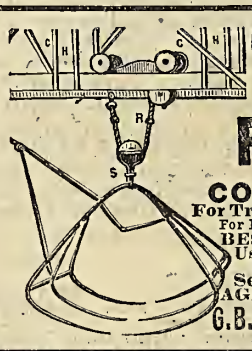
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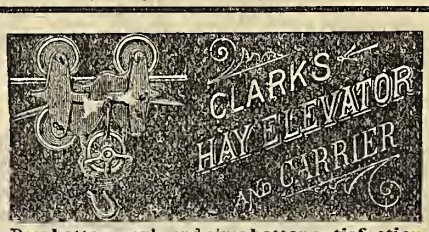
IT WILL PAY YOU,
If you run a Mower or Reaper, to purchase a BOSS Sickle Grinder.
It will pay you if you want to handle a reliable Sickle Grinder and one that is sold at reasonable prices, to handle the BOSS. More Boss Sickle Grinders are sold every year than all others made.
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Manu'f'rs of Pumps, Windmills, etc.



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TO PUT UP YOUR TRACKS FOR
HAY CONVEYORS,
while the barns are full. You can then do the work yourself without the help of a carpenter, as you require no scaffolding. For circulars and prices of the best Hay Conveyors, for either straight or curved track, address
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GRAPPLING HAY FORK
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CONVEYORS
For Track, Rope or Rod
For BARNS or STACKING.
BEST Combination.
Used by Thousands
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Send for Circular.
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are sent anywhere on trial to operate against all other Presses.



the customer keeping the one that suits best.
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Received First Premium at N. Y. State Fair, 1880, 1881 and 1882, and Grand Gold Medal in 1883, over Dederick and others. **The only perfect Hay Press made.** Puts 10 tons in car. Most simple and durable. A bale every 3 minutes. Satisfaction guaranteed. Three bales to any other Press' two. Send for Circulars. Also Horse-Powers, Road Graders, Cider Mills, Corn Shellers, Feed Cutters, etc. Manufactured by
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Gardner's Railway Pitching Apparatus.



Consisting of Grappling Fork, Carrier, Pulleys, etc. This Fork, Car, etc., has been sold throughout the U. S. and Canada with the greatest success. It has won its way amid the greatest competition of Forks and Carriers, and is without doubt the best hay and grain unloader made. Every farmer should send for a circular now. E. V. R. GARDNER & CO., Westtown, Orange Co., N. Y.

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ENGINES. PORTABLE, TRACTION, DETACHED.

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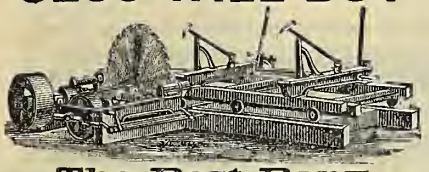
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The Newell MILL.

Pulverizes everything—hard, soft, sticky, and gummy. Grain, Drugs, Chemicals, Clay, Guano, Cotton Seed, Bark, &c., &c. A wonderful machine for grinding Corn, Oats, Feed, &c., &c. Steam Engines and Boilers of all sizes, for Farmers' and Manufacturers' use—at lowest prices. Send for Circular. Address,
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$250 WILL BUY



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SAW MILL
Yet Offered for the Money
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OUR NEW
No. 7 Feed Mill.
THE 8th WONDER OF THE WORLD.



Don't fail to get description before buying. Warranted to grind faster and better than any mill of same price. The lightest draft mill. Has double force feed and **Cast Cast Steel Grinders.** We also make Big, Little, and New Giants. The only mill that will grind with husk on. Send for prices to
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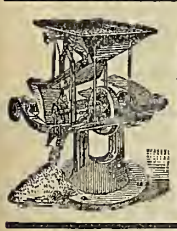


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OVER 25,000 NOW IN USE,
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STEVENS'
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CORN & FEED MILLS
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☞ *Mention this paper.*





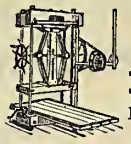
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Corn & Cob Mills, **18 sizes,** adapted for all kinds of power. Warranted to do as good work as Buhr stone, and to give satisfaction. We guarantee them to do all we claim for them. Will give a *trial of ten days,* and if not as represented, can be *returned at our expense.*
American Grinding Mill Co.,
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Send for Catalogue and Price List.



GRIND YOUR OWN BONE,
Meal, Oyster Shells & Corn
in the **$5 HAND MILL** (F. Wilson's Patent). **100 per cent.** more made in keeping **poultry.** Also **Power Mills** and **Farm Feed Mills.** Circulars and Testimonials sent on application.
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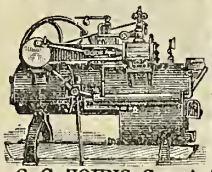
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SEND FOR CIRCULAR.
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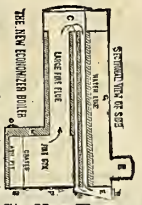


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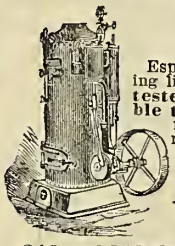
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PULVERIZING HARROW,
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SEE ADVERTISEMENT ON PAGE 183

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The New Economizer, the only Agricultural Engine with Return Flue Boiler in use. Send for circular to PORTER MFG. Co., Limited, Syracuse, N. Y.
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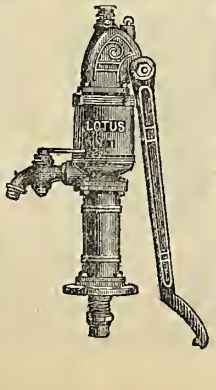
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Especially adapted for purposes requiring light power. Wrought iron boilers—**tested, inspected and insured payable to the purchaser.** Guaranteed as represented. Ready to run as soon as received.

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WITH
Field's Orchard Force Pump
THE FARMERS' FRIEND.
Positively the Cheapest and the Best. All Sizes and Kinds of Iron Pumps. You can save money by purchasing your pumps from us. Send for Catalogue.
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Force Pumps.
Mushroom Strainers, Sand Chambers, Deep Well Pumps, Garden Engines.
Orders received, and Pumps fitted complete and ready to be put into the deepest wells.
Full supply of **Hose, Iron Pipe,** and **Brass Goods.**
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This new tool is an admirable gardener's assistant, and enables one man to do the work of **five.** Remit by postal note or registered letter. 36 pp. illustrated Catalogue **free**
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Hege's Improved Circular Saw Mills
Send for CIRCULARS.
With universal Log Beam, Rectilinear, simultaneous Set works, and Double Eccentric Friction Feed.
Prices low. Workmanship first-class.
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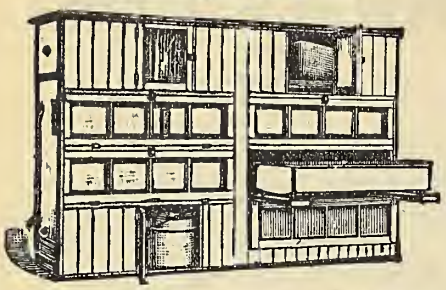


Don't use an awkward inconvenient device for erecting your **WIRE FENCE,** but get one of our

WIRE STRETCHERS.

The most practical, simple, durable, and effective device ever invented. Pays the price the first day used, and one man does the work. Gives perfect satisfaction. **Every** Stretcher Warranted. Please send your address for Circulars and Directions for Wire Fence Building to
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THE FERGUSON



BUREAU CREAMERY.

☞ It makes the *most* and *best* butter. ☜
☞ Uses the least ice, and saves the most labor. ☜
Hundreds have discarded deep setters and adopted the Bureau. Highly endorsed by leading Dairymen.

DON'T BUY ANY CANS, PANS OR CREAMER, or send your milk to the factory, until you have sent for our large illustrated circulars and price lists.

THE FERGUSON M'F'G. CO., Burlington, Vt.

O.K. CREAMERY



Has the largest cooling surface, takes less cooling material, takes less labor in operating it, and

GIVES THE BEST RESULTS

Has a glass the whole depth of can that shows outside the condition of the milk without touching the Creamery, and can see the cream-line the whole length in drawing off. **It Raises all Cream between milkings.** For circular address

JOHN S. CARTER Sole Manufact'r, SYRACUSE, N. Y.

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Creamer



Requires no lifting or handling to skim or clean it. It is the prince of **LABOR-SAVING** Creamers. It will last for 20 years. It is warranted to do all we claim. To one man in every town where not already introduced we will make a special private offer. Address,

DELAWARE CO. CREAMER CO.,
Mention *Am. Agriculturist.* **Benton Harbor, Mich.**

SHIPPERS OF MILK, ATTENTION!

WARREN MILK BOTTLES,



PATENTED MARCH 23d, 1880.

Adapted for the delivery of Milk in all Cities and Towns.

A Long Needed Want at last Supplied.

DESCRIPTIVE CIRCULARS ON APPLICATION.

Warren Glass Works Co.
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Creamery & Refrigerator COMBINED.



AGENTS WANTED

For **families, dairies, factories, the cream-gathering system; for hotels, etc.** Sizes for One Cow to Fifty. Used with or without Ice.

STODDARD CHURN.

BEST ON THE MARKET. **No floats or dashers inside.**



SEND FOR CIRCULARS

Nine Sizes for dairy and factory **with or without pulley.** One at wholesale where we have no Agent.

Dog Powers, Butter Boxes, Prints, Etc.
Moseley & Stoddard M'f'g Co.
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INDISPUTABLE FACTS!

Read, and see how the Celebrated Butter-makers of the Country are setting their Milk.

The *Echo Farm*, Litchfield, Conn., whose butter has sold for $1.25 per pound, uses the **Cooley Creamer.**
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The premium for the largest per cent. of yield in butter of any factory or dairy in the great dairy State of Iowa in 1880, was awarded to P. G. Henderson, Central City, Iowa, who set the milk at his factory in **Cooley Creamers.**
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At the same Fair the premium for *best butter* made in *June* was awarded to **Cooley butter.**
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The Cooley Creamer is made in four styles—all sizes for dairy or factory use.

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Used in Dairies now all over the U. S. Makes more Butter than any other process. Our Testimonials in circulars are vouchers. We furnish **Churns, Butter Workers, etc.** First order at wholesale where we have no agents—Agents wanted. Send for Circulars.

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REID'S CREAMERY

ALWAYS MAKES GOOD **BUTTER. Simplest and Best.**

Agents Wanted.

BUTTER WORKER.



Most Effective and Convenient, also Power Workers, Butter Printers, Shipping Boxes, etc.

Write for Illustrated Catalogue.

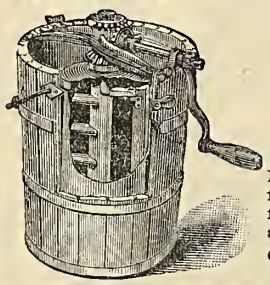
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APPARATUS & SUPPLIES FOR CHEESE FACTORIES!

CREAMERIES AND DAIRIES.

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"RAPID" Ice Cream Freezers.

Eleven sizes. Intended for first-class sales. Send for Descriptive Circular and Prices.

CLEMENT & DUNBAR, Philadelphia, Pa.

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IT IS SUPERIOR TO ALL.

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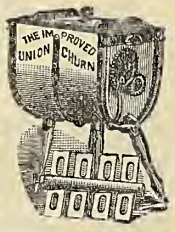


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Agents Wanted.

IT IS EQUALLED NOWHERE.

The Improved **UNION CHURN.**

Has Stood the Test Ten Years.



It is Warranted to be all right. You run no risk in buying one.

Send for Circulars with full details of either or both these articles to the

UNION MANUF'G CO., Toledo, Ohio.

GET THE BEST

A NEW BUTTER-WORKER

TRY ONE.

After three years of practical trial and public endorsement, we offer to Dairymen and to the Trade, our HAND BUTTER-WORKER, operating on the principle of *direct and powerful pressure*, instead of rolling, grinding, or sliding upon the butter.

We claim that it is the *only* Butter-Worker which will *certainly, quickly* and *easily*, take out *all* the buttermilk, and which *does not* and *cannot* injure the grain of the butter. *It works in the salt as easily and as well.*

THE GENUINE

BLANCHARD CHURN

GET THE BEST

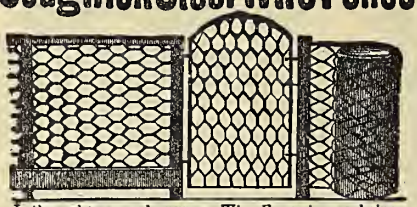
Five Sizes made for Family Dairies. Eight sizes for Factory use. We now make both the Round and Square form of Factory Churns. All our goods are of perfect stock and the best workmanship. They are strong, simple, efficient, convenient and durable. The continue to be

THE STANDARD CHURNS OF THE COUNTRY.

Inquire of the nearest Dealer in such goods for a "BLANCHARD BUTTER-WORKER," or a *genuine* "BLANCHARD CHURN," and if he has none on hand, send postal for Prices and Descriptive Circular to

THE INVENTORS AND SOLE MANUFACTURERS,
PORTER BLANCHARD'S SONS, CONCORD, N. H.
Established, 1818.

Sedgwick Steel Wire Fence



Is the only general purpose Wire Fence in use, being a **Strong Net-Work Without Barbs.** It will turn dogs, pigs, sheep, and poultry, as well as the most vicious stock, without injury to either fence or stock. It is just the fence for farms, gardens, stock ranges and railroads, and very neat for lawns, parks, school lots and cemeteries. Covered with rust-proof paint (or galvanized) it will last a life-time. **It is Superior to Boards or Barbed Wire** in every respect. We ask for it a fair trial, knowing it will wear itself into favor. The **Sedgwick Gates,** made of wrought-iron pipe and steel wire, **defy all competition** in neatness, strength and durability. We also make the best and cheapest **All Iron Automatic or Self-Opening Gate, also Cheapest and Neatest All Iron Fence. Best Wire Stretcher and Post Auger. Also manufacture Russell's excellent Wind Engines for pumping water,** or geared engines for grinding and other light work. For prices and particulars ask hardware dealers, or address, mentioning paper.

SEDGWICK BROS, M'f'rs., Richmond Ind.

EVERY HOUSEWIFE WANTS ONE.—THE Indestructable Iron Pad. No sticky irons, starch or rust. Sample 15 cents. Agents wanted.
E. F. EDGECOMB, Mechanic Falls, Me.

DE LAVAL'S CREAM SEPARATOR,

THE GREATEST DAIRY INVENTION.

Extracts the cream from milk, fresh from the cow. Does away with setting, holding and use of ice. Gives ten per cent. more and better butter. Leaves the milk sweet. In use in the best Dairies and Creameries in the United States. Capacity 70 gallons per hour. Never wears out. Saves its cost every year per each twenty-five cows. Address,

DE LAVAL CREAM SEPARATOR CO.,
32 Park Row, New York.

AN

UNSEEN WORLD

Revealed to Every Eye.

The unaided eye sees but *very little* of the universe. The teleseope brings to our knowledge vast numbers of worlds of the existence of which we

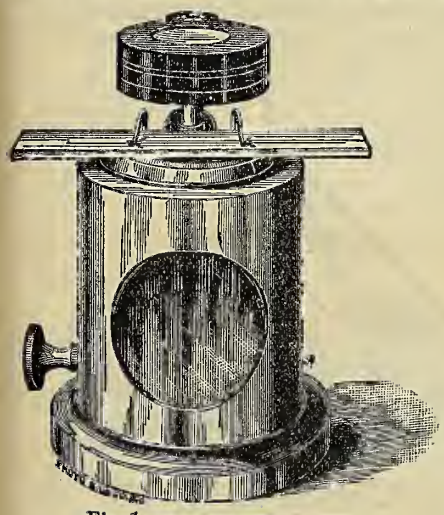


Fig. 1.—MICROSCOPE CLOSED.

should have had no eonception, without its aid. There is also all around us a world invisible to our natural eyes; and only by using the Microscope can we see and study its wonderful inhabitants. By this we find that there are myriads of things hidden from us by their minuteness—indeed thousands, if not millions, for every one that is visible.

We find that there are animal forms that move, feed, multiply, and apparently enjoy themselves, yet so small that millions of them gathered in a space as large as a silver dollar, would each have abundant room to sport and play!

Not only are there minute forms of animal life, but there are innumerable plants so small that no

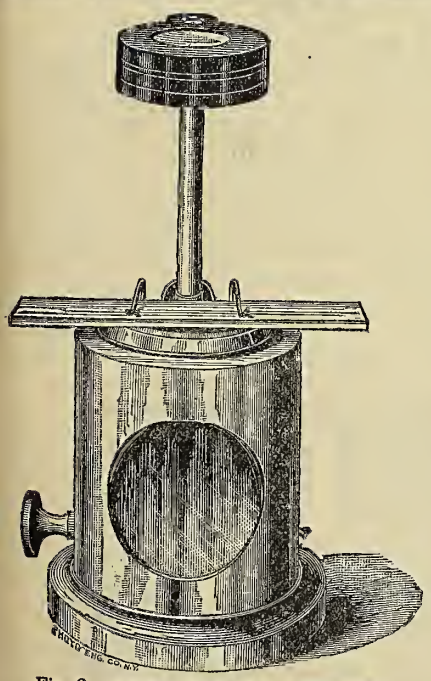


Fig. 2.—MICROSCOPE READY FOR USE.

one is aware of their existence until it is revealed by the Microscope. These Little Things are not only interesting, but to *see* and know them is of

Great Importance to Us.

The greatest harm to our Crops, our Animals, our Fruits, our Flowers, even to our Bodies, is found to be due to *living* things, both vegetable and animal, so small that they have until reeently escaped our knowledge.

Do You Want to See some of these small but wonderfully interesting things? We are now prepared to help every reader of the *American Agriculturist* to some conception of them, to help look a little way down into this unseen world.

The American Agriculturist Compound Microscope.

This was specially devised for the readers of the *American Agriculturist*. [See the March *American Agriculturist*, pages 142 and 143, for full description of this wonderful Mieroscope, made expressly for us.] This instrument will enable one to examine, and to see very distinctly and clearly, a vast multitude of interesting things, each one a thousand times smaller than the tiniest thing that you can see with the unassisted eyes. This instrument, as you will learn from the description, is accessible to all our readers, either without cost, or at a cost far below anything like it was ever before offered—at a cost so small that if you knew how valuable it is, you would spare no sacrifiee or effort to get it immediately.

Not a **Family,** not a **Teacher,** not a **School,** in all the land, should be without one. It would be of more interest to all, and to most people more useful, than anything else they could buy for many times the cost.

How Supplied.

This Simple Microscope is more valuable in the quality of its lenses, its arrangements, etc., than any thing we have ever seen offered for several dollars. Probably its equal can nowhere else be had under four or five dollars. But it will be supplied by us and sent *delivered free* to any part of the United States and Territories for two dollars, and *delivered free* to any actual subscriber to the *American Agriculturist* for 1884, for **One Dollar and twenty-five cents.**

FURTHER.—We will present one, delivered free, and send the *American Agriculturist* to a new subscriber, post-paid, during all of 1884, for two dollars.

FURTHER.—We will present this Microscope to any present subscriber, and **deliver it free** to him, who will send us two new subscribers to the *American Agriculturist* for one year, at one dollar and fifty cents eaeh.

Take Notice ALL Subscribers.

Any person already a subscriber to the *American Agriculturist*, can have one of the above Microscopes delivered free to him for one dollar and twenty-five cents.

First Come, First Served.

The manufacturers who are making these beautiful *American Agriculturist* Microscopes expressly for us, are striving to bring them as near perfection as possible. If some little delay consequently occurs, it will be in the interest of those who are sending for the instruments, since they will be all the better for the longer time employed in perfecting them. We are however entering the names of the applicants for the Microscopes in the order in which they are received, and the Microscopes will be delivered in this order.

As above stated, the March *American Agriculturist* gives very full detailed descriptions of both the Simple and Compound *American Agriculturist* Microscopes, made expressly for us.

Catalogues Acknowledged.

Dealers, more than ever before, add new departments to their business and make it difficult to classify their catalogues. Thus seedsmen include in their lists the ordinary bedding plants and small fruits, while nurserymen generally supply florist's stock. We, as heretofore, enter the catalogues under what appears to be the leading department, and note the others:

SEEDSMEN.

C. E. ALLEN, Brattleboro, Vt.—Small fruits, seeds, and greenhouse and bedding plants.

ALNEER BROTHERS, Rockford, Ill.—A new name, but the firm issues a full and attractive catalogue.

HUGO BEYER, New London, Iowa.—An interesting catalogue with numerous novelties.

BOWMAN & BRECKBILL, Forgy, Ohio.—Fruits and ornamental trees, roses, etc.

H. L. BROUGHTON, Marblehead, Mass.—Price-list of small fruits.

J. A. BUEL & Co., Springfield, Ohio.—Besides seeds with very full descriptions, offer bedding and other plants, implements, etc.

J. G. BURROWS, Fishkill Village, N. Y.—Grape vines, small fruits, Atlantic strawberry, etc.

THOS. A. COX & Co., San Francisco, Cal.—Besides the usual stock many tree, shrub and flower seeds of natives of the coast.

C. W. DORR & Co., Des Moines, Iowa.—Issued as a seed list, but largely devoted to fruit and ornamental trees, etc. Also implements and farm seeds.

EDWARD GILLITT, Southwick, Mass.—List of North American perennial plants, orchids, rare ferns, etc.

THOS. G. HARROLD, Kingston, Md.—Bedding and greenhouse shrubs, etc., with new and beautiful sorts.

A. D. HUSON, Sheboygan Falls, Wis.—Besides vegetables is very full in seeds of wheat and other farm crops.

WM. B. JONES & SONS, Birdsville Seed Farms, Herndon, Ga.—Glad to know that seed-growing is followed in the Southern States. The catalogue includes many farm and garden seeds peculiar to a warm climate.

FRED. N. LANG, Baraboo, Wis.—Besides the useful varieties, a number of specialties of his own.

MICHEL PLANT & SEED Co., St. Louis, Mo.—As ample and as full as usual, not only with seeds, but plants and florist's supplies.

C. F. MILLER, Dundas, Minn.—A special circular relating to Northern cane seed.

J. A. MOODY, Youngstown, Ohio.—Compact, comprehensive, useful.

JOHN R. & A. MURDOCH, Pittsburgh, Pa.—Seeds, greenhouse and stove plants, fruit and other trees, in fact nearly everything that grows and tools to do the work

PAGE & KELSEY, Des Moines, Iowa.—Greenhouse and other plants, fruit and other trees as well as seeds.

PARKER, GANNETT & WOOD, Boston, Mass.—Includes greenhouse and other plants, fruit trees and shrubs, many implements, etc.

PEARCE, WELD & Co., London, Ont.—Besides the usual vegetable and flower seeds, very full in those of the farm.

A. D. PERRY & Co., Syracuse, N. Y.—Very full, plain and business-like.

ROBT. C. REEVES, 185-187 Water St., New York.—A large catalogue, and about equally divided between seeds and implements.

E. P. ROE, Cornwall-on-the-Hudson.—Small fruits and grape-vines in abundance.

J. B. ROOT & Co., Rockford, Ill.—The business established by the late Mr. Root is kept up to its former high standard by Mrs. Root.

SCHLEGEL & FOTTLER, 26 So. Market St., Boston, Mass.—Very bright and fresh looking, with a long list of novelties and specialties.

HIRAM SIBLEY & Co., Rochester, N. Y., and Chicago Ill.—A list for the trade only.

WM. W. STERLING, Cutchogue, N. Y.—Selected seed corn and other seeds.

L. TEMPLIN & SONS.—Ornamental shrubs, vines, bulbs, and flower seeds.

R. T. THOMPSON, Muscatine, Iowa.—Neat, compact and sensible. Also poultry.

THORBURN & TITUS, No. 158 Chambers St., N. Y.—Crowded full in every department with the newest and best.

ISAAC F. TILLINGHAST, La Plume, Pa.—Contains the novelties besides the usual sorts, and condenses much useful instruction withal.

J. C. VAUGHAN, Chicago, Ill.—A corn and potato manual, with choice vegetable and flower seeds.

W. E. WELD, Ingleside, N. Y. - Descriptive price-list of seed potatoes.

WOODS, BEACH & Co., New Brighton, Pa.—A descriptive catalogue of roses, greenhouse and bedding plants.

NURSERYMEN.

EDWIN ALLEN, New Brunswick, N. J.—General stock of fruit and ornamental trees.

IRVING ALLEN, Springfield, Mass.—Very full in small fruits, including the newest.

H. S. ANDERSON, Union Springs, N. Y.—Trees and small fruits with ornamental stock.

GARRET H. BANTA, Rivcrdale, Bergen Co., N. J.—A general collection of fruit and ornamental trees and small fruits.

WM. F. BASSETT, Hammonton, N. J.—Small fruits with novelties and specialties in tree fruits.

FRANCIS C. BIDDLE, Chadd's Ford, Pa.—Specially devoted to small fruits with some others.

JOSEPH E. BONSALL, Salem, O.—Greenhouse plants, etc.

JOHN S. COLLINS, Moorestown, N. J.—As nsual sends an abundantly illustrated catalogue, with all the desirable new things.

DINGEE & CONARD Co., West Grove, Pa.—A guide to rose culture, very full and richly illustrated.

N. K. EATON, South Sudbury, Mass.—A select list of small fruits.

FRANK FINCH, Clyde, N. Y.—A large broadside list, presenting small fruits, and vegetable and farm seeds.

FRANK FORD & SON, Ravenna, O.—A catalogue of small fruits and seeds. Illustrated.

HALE BROTHERS, South Glastonhury, Conn.—A full list of small fruits with several new kinds.

W. N. HOUGHTALING, Seymour, Conn.—Issues a special circular to describe his new strawberry, Connecticut Queen.

JACKSON & PERKINS, Newark, N. Y.—A special description of the Ohio Black Raspberry.

GEORGE S. JOSSELYN, Fredonia, N. Y.—A large list of grapes. The Fay's Prolific Cnrrant handsomely figured and advocated.

C. P. LINES, New Haven, Conn.—In a snpplementary catalogue figures several recent grapes and other fruits.

WILLIAM H. MOON, Morrisville, Pa.—General nursery stock; very full and abreast of the times.

JOHN PERKINS, Moorestown, N. J.—Both orchard and small fruits, with all the new kinds.

E. H. RICKER & Co., West Elgin, Ill.—Manage to crowd a great deal in a small catalogue.

E. Y. TEAS, Dunreith, Henry Co., Ind.—Very full in all departments and abundantly illustrated.

T. WALKER & Co., New Albany, Ind.—The usual fruits and many flowers.

D. C. WILDEY, Albany, N. Y.—Annonnces the new frnits, devoting a separate manifesto to each.

STOCK, IMPLEMENTS AND FERTILIZERS.

BOWKER FERTILIZING Co., New York and Boston.—Stockbridge's Manures, and Bowker's hill and drill phosphates, with potash.

R. B. CHAFFIN & Co., Richmond, Va.—A real estate journal, with 600 farms and mills for sale.

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CHILDS & JONES, Utica, N. Y.—Cheese factory, creamery and dairy supplies.

CLIPPER MACHINE WORKS, Keene, N. H.—Mowers, reapers, and other farm implements.

C-SPRING CART Co., Rushville, Ind.—Illustrated sheet of C-spring carts.

H. P. DEUSCHER, Hamilton, Ohio.—A descriptive list of farm implements.

A. A. & L. H. HALLADAY, Bellows' Falls, Vt.—Pure Langshan fowls with prices.

FRANK KNOWLES, Little Hocking, Ohio.—Pnre-bred poultry, and eggs for sittings.

LAMB KNITTING MACHINE Co., Chicopee Falls, Mass.—A neat catalogue and price-list.

MATHEWS & SMALL, No. 21 S. Market St., Boston.—Garden seed drills, hand cultivators, etc.

MAYWOOD Co., Maywood, Ill.—Manufacturers of Chicago screw-pulverizer and scraper.

METROPOLITAN AGRICULTURAL WORKS, No. 70 Cortlandt St., N. Y.—Large, fully illustrated catalogue and price-list of farm and garden implements, and fertilizers.

E. C. NEWTON, Batavia, Ill.—An improved animal tie.

L. PENNOCK & SONS Co., Kennett Square, Pa.—A fully illustrated catalogue of scrapers and other road machinery.

E. ROTH & BRO., New Oxford, Pa.—Saw file guides.

RUSSELL & Co., Massillon, Ohio.—A fine list of agricnltural implements, and a brilliant cover to the large illustrated catalogue.

ST. LAWRENCE MANUFACTURING Co., Gouverneur, N. Y.—The Corbin Disc-harrow.

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Two Excellent Cakes.—The two cakes here described, eaten at the house of a friend, were so excellent that we asked the specifications for the *American Agriculturist:* 1st. For a large loaf, rub to a cream one coffee cupful of butter with two and one-half-cups of sugar; then stir well with it one cup sweet milk, four and one-half cups flour, and flavoring to taste. Just before baking mix thoroughly with the above one cup of finely grated cocoanut, the whites of seven eggs beaten to a stiff froth, and three teaspoonfuls baking powder. After baking, frost with the well-beaten white of one egg and sprinkle uniformly over it a cupful of finely grated cocoanut. By using about half a cup more of flour, the above may be baked as a layer cake, requiring, of course, more icing.—2d. Beat the yolks of the above seven eggs thoroughly, add one-half cup butter previously rubbed to a cream with two cups sugar, two-thirds cup milk, three cups flour, three teaspoonfuls baking powder, and flavoring desired. When well mixed, take two-fifths of it and stir into it two or three tablespoonfuls of chocolate previously well dissolved in a little hot water. Bake in two layers, and place between three layers baked from the other three-fifths. Frost with an icing made of one whole egg, a tablespoonful of chocolate, one-half cup sugar, and a little water.

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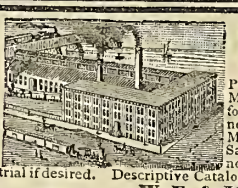
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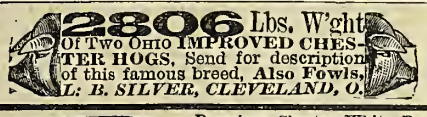


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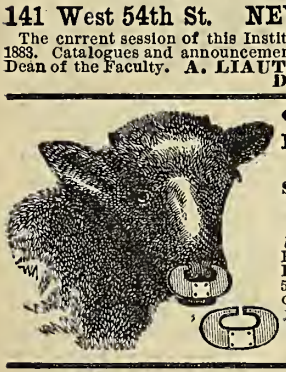
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KANSAS LANDS
ALONG THE
KANSAS DIVISION U. P. R'WAY.

STOCK RAISING
Buffalo Grass Pasture Summer and Winter.

WOOL GROWING
Unsurpassed for Climate, Grasses, Water.

CORN and WHEAT
200,000,000 Bus. Corn. 30,000,000 Wheat.

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The best in the Eastern Market.

Pamphlets and Maps free. **B. McALLASTER,** Land Commis'r, Kansas City, Mo.



MIXED FARMING
IN NEBRASKA.

Grain, Corn, and Live Stock Growing Combined.

The most Profitable and agreeable of any occupation.

1883

Reports prove the agriculturists of **Nebraska** to have been the most successful of any people in the **West.**

Write for information about the above matters—also about U. P. Ry. lands in this State, which will be sent Free, in great variety, by **LEAVITT BURNHAM,**
Land Commissioner U. P. Ry. Co.,
Omaha, Neb.

☞ Refer to this advertisement.

NORTH DAKOTA WHEAT FARMS, and Iowa Land For Sale,

Large "Bonanza" farms, with buildings, machinery, stock, seed, house furnished, everything complete, or building lots in Sanborn, Barnes Co., North Dakota, on the great "Northern Pacific," and "L. T. Sanborn & C. R. R.," crossing the N. P. at Sanborn, giving this best Dakota town a still greater boom, 3 sections adjoining Sanborn (and "Barnum's addition"), and a section ½ mile from N. P. R. R. track, 5½ miles east of Bismarck, Capital of Dakota, for sale in whole sections.—Also 80 acres just outside Council Bluffs, Iowa, and City lots. Too much care for a man at 60; must sell some—½ or ⅔ on time, at 6 per cent. I. W. BARNUM, owner, 253 Halsey St., Brooklyn, N. Y., during March, after that, at Sanborn, North Dakota.

FOR SALE. Farms in Minnesota and Dakota. Choice Wheat Farms in the Red River Valley. Terms to suit every purchaser. Also town lots in Brainerd, Fargo, Valley City and Bismarck. Special attention given to furnishing information relative to business and farming interests of Minnesota and Dakota, and to making investments for non-residents. Call on or write,
H. M. BARRON, Brainerd, Minn.

160 MARYLAND FARMS, in Tracts from 80 to 300 acres.
Near railroad and navigable salt water (with all its luxuries) in Talbot Co., Md. Climate mild and healthy. Titles good. New Pamphlet and Map, showing *location*, free.
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234 Montgomery St., San Francisco, Cal.

FARMS.—Mild climate; profitable and productive; $500 to $2,000. Best of markets. New land, $20 per acre. Terms easy. C. K. LANDIS, Vineland, N. J.

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HENRY S. ISELIN, SHELDON, IOWA.
Minnesota and Iowa Lands. Send for Monthly Land Journal, free.

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D. P. MILLER, Cumberland, Md.

ONE CENT

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WILL

give to the writer full information as to the best lands in the United States now for sale; how he can

BUY

them on the lowest and best terms, also the full text of the U. S. land laws and how to secure

320 ACRES

of Government Lands in Northwestern Minnesota and Northeastern Dakota.

ADDRESS:

JAMES B. POWER,
Land and Emigration Commissioner,
ST. PAUL, MINN.

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LANDS
in NORTHERN WISCONSIN on the line of the **WISCONSIN CENTRAL RAILROAD** for sale on liberal terms to actual Settlers. Full particulars with good map sent free. **CHAS. L. COLBY,**
LAND COMMISSIONER, W.C.R.R., Milwaukee, Wis.

A Profitable Investment!

Better than Lotteries, than "Margins," than "Futures." Each $5 doubled within 30 days, and loss rendered impossible.

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$10 Monthly Buys Your Own.

HINSDALE CITY, N. Y. Several thousand building lots, **$160** each, surrounding depot; selling on monthly payments of $5 per lot. Cottages, $10 monthly for each $1,000 of cost. Price placed at about half present value to promote quick sales, build hundreds of cottages, and give early purchasers benefit of monthly increase of $5 per lot until present prices are at least doubled. Hinsdale is 12 miles from New York, 35 minutes by rail, and 5 minutes additional by Brooklyn Bridge or Ferry, commutation only 10 cents per trip. It adjoins Garden City, the most beautiful of all cities, and is the Long Island R. R. Junction for both Garden City and Creedmoor Rifle Range. Its climate, drives and surroundings are unsurpassed. Circulars, etc., of

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335 Broadway, New York.

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Stock Ranches In Central Texas, 9,136 acres. Each has never-failing water, and near railroads; must be sold; terms easy; price low. For further particulars, address **J. B. or F. C. TURNER,**
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Now's your time to get up Orders for our CELEBRATED TEAS and COFFEES, and secure a **beautiful MOSS ROSE or GOLD-BAND CHINA TEA-SET** (44 pieces), our own importation. One of these beautiful china sets given away to the party sending an order for $25. This is the greatest inducement ever offered. Send in your orders and **enjoy** a cup of GOOD TEA or COFFEE, and at the same time procure a HANDSOME CHINA TEA-SET. No humbug. Good Teas, 30c., 35., and 40c. per lb. Excellent Teas, 50c. and 60c., and very best from 65c. to 90c. We are the oldest and largest Tea Company in the business. The reputation of our house requires no comment. We have just imported some very fine **WHITE GRANITE DINNER SETS,** (115 pieces), which we give away with Tea and Coffee orders of $40 and upwards. For full particulars,

Address THE GREAT AMERICAN TEA CO.
P. O. Box 289. 31 and 33 Vesey St., New York.



"DRINK FAIR, BETSEY, WOTEVER YOU DO."
Martin Chuzzlewit.

TEA CLUB ORDERS.

We have made a specialty for six years of *giving away* as Premiums, to those who get up clubs for our goods, *Dinner and Tea Sets, Gold Band Sets, Silverware, etc.* Teas of all kinds, from 30 to 75 cents per pound. We do a very large Tea and Coffee business, besides sending out from 60 to 90 **CLUB ORDERS** each day. **SILVER-PLATED CASTERS** as Premiums with **$5, $7** and **$10** orders. **WHITE TEA SETS** with **$10** orders. **DECORATED TEA SETS** with **$15. GOLD BAND** or **MOSS ROSE SETS of 44 pieces,** or **DINNER SETS of 106 pieces** with **$20** orders, and a **Host** of other Premiums. Send us postal and mention this paper, and we will send you full **Price and Premium List.** Freight charges average 75 cents per 100 lbs. to points West.
GREAT LONDON TEA CO.,
801 Washington Street, Boston, Mass.



GIVEN AWAY

Ladies canvassing for Tea will do well to send for our Premium List. We have premiums for orders from $5 to $60, including Gold Band Tea Sets, Waltham Watches, etc. We send thousands of these orders every year, and have yet to hear of any dissatisfaction from those receiving them. If any lady reader of this paper wishes for a beautiful Gold Band Tea Set, they will find it to their advantage to send us a postal for further information.

ATLANTIC TEA COMPANY,
FITCHBURG, MASS.

American Agriculturist

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(**English** and **German** Edition at same Rates.)

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[A free copy to sender of club of 20 at $1 each.]

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Ordinary Pages, **$1.00** *per line* (agate), each insertion.
Last Page, and Third Cover Page, **$1.25** *per line.*
Second Cover Page—**$1.50** per line.
Page next to Reading and Last Cover Page—**$2.00** per line.
No advertisement taken for less than **$3.00** each insertion.
Fourteen agate lines make one inch.

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☞ No Advertisement of Medicines or Humbugs received.
Address all orders to

AMERICAN AGRICULTURIST,
751 Broadway, New York.



GOLD MEDAL, PARIS, 1878.

BAKER'S

Breakfast Cocoa.

Warranted *absolutely pure Cocoa*, from which the excess of Oil has been removed. It has *three times the strength* of Cocoa mixed with Starch, Arrowroot or Sugar, and is therefore far more economical. It is delicious, nourishing, strengthening, easily digested, and admirably adapted for invalids as well as for persons in health.

Sold by Grocers everywhere.

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Book of 100 Designs for Embroidery, Braiding, &c., 25 cts.

Our Book, **Manual of Needlework**, is a complete instructor in Kensington, Arasene and all other branches of Embroidery, Knitting Tattin Crocheting, Lace Making, &c., 35 cts.; Four for $1. All the above for $1. **Patten Pub. Co., 47 Barclay St., N. Y.**

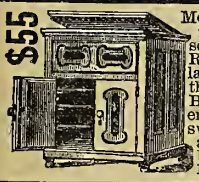
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THE **STANDARD SILK** OF THE WORLD!

Full assortment of above as well as of the celebrated **EUREKA KNITTING SILK**, EMBROIDERIES FLOSSES, &c., for sale by all leading dealers. Sixty page ILLUSTRATED PAMPHLET, with rules for KNITTING, EMBROIDERY, CROCHET, &c., sent for 6 cents in stamps. **EUREKA SILK CO.**, Boston, Mass

$55



More people are poisoned by foul Refrigerators than by sewer gas. Three-fourths of Refrigerators sold breed malaria and fevers, by tainting the food. My **No. 50** House, Hotel and Restaurant Refrigerator will **keep anything** sweet and good. Price **$55** at any R. R. Station in the U. S. Send for Circulars. B. A. STEVENS, Toledo, Ohio.

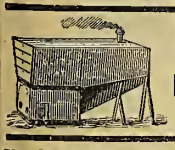
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Treatise on improved methods SENT FREE. Wonderful results. Tables of Yields, Prices, Profits, and General Statistics. Address

AMERICAN MANUF'G CO., Waynesboro, Pa.



FRUIT DRIER.

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Deitz Automatic Fruit Drier.

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Books on Hygiene, Physical Culture, Sociology, Government of Children, etc.

THE HERALD OF HEALTH. Monthly. $1 per year.
HYGIENE OF THE BRAIN AND THE CURE OF NERVOUSNESS. By M. L. Holbrook, M. D. $1.50.
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LIVER COMPLAINT, MENTAL DYSPEPSIA, AND HEADACHE. Their Cure by Home Treatment. By M. L. Holbrook, M. D. $1. Be sure and get our Catalogue. Sample of Herald of Health free.
M. L. Holbrook, Nos. 13 and 15 Laight Street, N. Y.

IT PAYS to sell our Rubber Printing Stamps. Samples free. J. M. MITTEN & CO., 208 Superior St., CLEVELAND, OHIO.

FOR 10 CENTS.

The *St. Louis Magazine*, edited by Alexander N. De Menil, now in its fifteenth year, is brilliantly illustrated, purely Western in make-up, replete with stories, poems, timely reading and humor, $1.50 a year. Sample copy and a set of gold colored picture cards sent for ten cents. Address, A. J. GILMORE, 213 North Eighth Street, St. Louis. THE AMERICAN AGRICULTURIST and ST. LOUIS MAGAZINE, sent one year for $1.75.

MRS. POTTS' PATENT COLD HANDLE SAD-IRONS



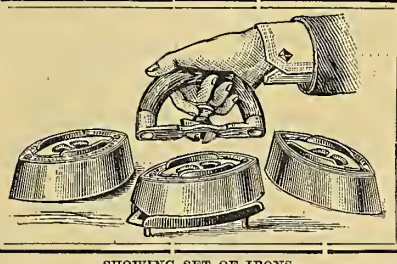


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DETACHABLE WALNUT HANDLE.

NO HOLDER OR CLOTH REQUIRED.

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IRON BOTH WAYS

SHOWING SET OF IRONS.

THREE IRONS, ONE HANDLE AND A STAND, GROUND BY PATENTED MACHINERY, WITH A SUPERIOR FINISH, AND SLIGHTLY CONVEX SURFACE,

MAKING THEM

IRON EASIER AND BETTER THAN ANY OTHERS.

BEST AND CHEAPEST.

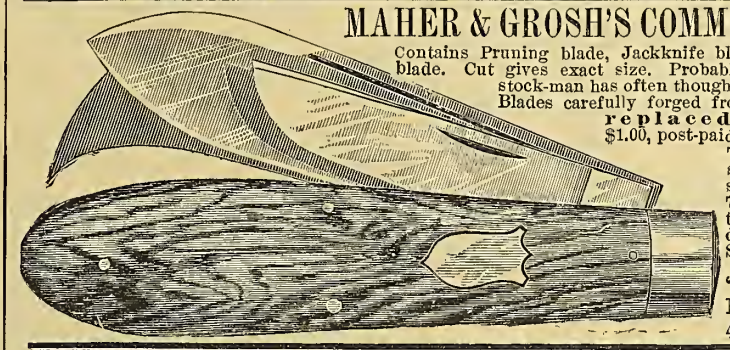
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BUY NORTHERN GROWN SEEDS. Produce by all odds the finest Flowers, Vegetables and crops. Send for new Catalogue; contains everything for Garden, House and Farm. It will pay you to get it. Largest stock of pure Farm Seeds in the West. Beautiful Plants and Roses by the 100,000.

JOHN A. SALZER, La Crosse, Wis.

MAHER & GROSH'S COMMON-SENSE KNIFE.



Contains Pruning blade, Jackknife blade, and Budding or Speying blade. Cut gives exact size. Probably every farmer, gardener, and stock-man has often thought of such a knife, and here it is. Blades carefully forged from razor steel, file-tested, and **replaced free** if soft or flawy. Price, $1.00, post-paid, or without the budding blade, 75 cents; with just large and small blades, 50 cents; extra strong 2-blade, for hard service, 75 cents; "Our Best" oil-tempered Pruner, $1.00; Budding knife, 65 cents; Pruning Shears, $1.00.

Illustrated List free; also our "How to Use a Razor."

MAHER & GROSH,
4 Monore St., TOLEDO, OHIO.

ELKHART CARRIAGE AND HARNESS M'F'G CO.

Makers of all styles of CARRIAGES, BUGGIES, SPRING WAGONS, SINGLE & DOUBLE HARNESS & SADDLES

No. 1. Team Harness **$25**



We employ no agents, and if what you order is not **satisfactory**, *we pay all expenses.* No. 42 Buggy (see cut) is just the same as others sell at $130. Top Buggies at **$90**, fine as usually sold for $125 to $140. Our Harness are all **No. 1 Oak Leather.** Single, **$8.50** to **$20.** Everything fully **warranted.** Before buying, send for our Illustrated 80-page Catalogue **free.** Address **W. B. PRATT, Sec'y, Elkhart, Indiana.**

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1870 * ESTABLISHED *

E. BLUNT, Manufacturer, 115 Maiden Lane, New York.

THE AMERICAN AGRICULTURIST, *in an article headed "The American Rubber Paint," writes:*

Of late years several substitutes for the ordinary Lead and Oil paint have been introduced. One of the successful ones of this kind is the American Rubber Paint which has been used with satisfaction by some of our associates, and which is as good as any article now in the market.

Greens,	for Window Blinds, etc.	**$2.50 per Gal.**
Other Shades,	including White and Black	**1.50** "
Roof Paint,	Water Proof	**1.00** "

Until **further Notice**, will allow a discount of **20** per cent on all orders of five gallons and upwards, accompanied by the cash, or will send **C. O. D.** by Express upon receipt of **10** per cent of the amount, to insure expenses. If after a proper trial the Paint is not all that it is represented to be, I will return the money, or repaint the building at my expense. Send for Sample Colors, Directions, etc.

THIRTY-NINTH ANNUAL REPORT

OF THE

New-York Life Insurance Co.

OFFICE, Nos. 346 and 348 BROADWAY, N. Y.

JANUARY 1, 1884.

Amount of Net Cash Assets, January 1, 1883.....$48,918,515.11

REVENUE ACCOUNT.

Premiums	$11,489,042.68		
Less deferred premiums January 1, 1883	540,555.91	—$10,948,486.77	
Interest and Rents (including realized gains on real estate sold)	3,038,863.95		
Less Interest accrued January 1, 1883	326,000.06	— 2,712,863.89	—$13,661,350.66
			$62,579,865.77

DISBURSEMENT ACCOUNT.

Losses by death, including reversionary additions to same	$2,263,092.29	
Endowments, matured and discounted, including reversionary additions to same	452,229.80	
Annuities, dividends, and returned premiums on cancelled policies	3,984,068.31	
Total Paid Policy-holders	$6,699,390.40	
Taxes and re-insurances	262,492.91	
Commissions, brokerages, agency expenses and physicians' fees	1,690,207.13	
Office and law expenses, salaries, advertising, printing, &c.	449,925.44	— $9,102,015.88
		$53,477,849.89

ASSETS.

Cash in bank, on hand, and in transit (since received)	$1,393,615.02	
Invested in United States, New York City and other stocks (market value $25,455,743.81)	23,390,690.98	
Real Estate	4,508,779.39	
Bonds and mortgages, first lien on real estate, (buildings thereon insured for $18,316,000.00 and the policies assigned to the Company as additional collateral security)	20,681,471.72	
Temporary loans, (secured by stocks, market value, $1,624,887.00)	1,393,500.00	
*Loans on existing policies, (the reserve held by the Company on these policies amounts to $2,570,617.00)	461,445.57	
*Quarterly and semi-annual premiums on existing policies, due subsequent to January 1, 1884	645,047.46	
*Premiums on existing policies in course of transmission and collection,	536,811.05	
Agents' balances	104,216.55	
Accrued Interest on investments, January 1, 1884	362,272.15	—$53,477,849.89
Excess of market value of securities over cost		2,065,052.83

**A detailed schedule of these items will accompany the usual annual report filed with the Insurance Department of the State of New York.*

Cash Assets, January 1, 1884, - $55,542,902.72

Appropriated as follows:

Adjusted losses, due subsequent to January 1, 1884	$251,403.43	
Reported Losses, awaiting proof, &c.	359,368.60	
Matured endowments, due and unpaid (claims not presented)	29,763.00	
Reserved for re-insurance on existing policies; participating insurance at 4 per cent. Carlisle net premium; non-participating at 5 per cent. Carlisle net premium	47,635,147.00	
Reserved for contingent liabilities to Tontine Dividend Fund, January 1, 1883, over and above a 4 per cent. reserve on existing policies of that class	$2,091,372.16	
Addition to the Fund during 1883 for surplus and matured reserves	1,116,939.00	
	$3,208,311.16	
DEDUCT— Returned to Tontine policy-holders during the year on matured Tontines	972,215.12	
Balance of Tontine Fund January 1, 1884	2,236,096.04	
Reserved for premiums paid in advance	28,610.48	
		$50,540,388.55
Divisible Surplus at 4 per cent.		**5,002,514.17**

Surplus by the New York State Standard at 4½ per ct., estimated at over **10,000,000.00**

From the undivided surplus of $5,002,514.17 the Board of Trustees has declared a Reversionary dividend to participating policies in proportion to their contribution to surplus, available on settlement of next annual premium.

During the year 15,561 policies have been issued, insuring $52,735,564.

Number of Policies in force	Jan. 1, 1880, 45,705 Jan. 1, 1881, 48,548 Jan. 1, 1882, 53,927 Jan. 1, 1883, 60,150 Jan. 1, 1884, 69,227	Amount at risk	Jan. 1, 1880, $127,417,763. Jan. 1, 1881, 135,726,916. Jan. 1, 1882, 151,760,824. Jan. 1, 1883, 171,415,097. Jan. 1, 1884, 198,746,043.
Death-claims paid	1879, $1,569,854. 1880, 1,731,721. 1881, 2,013,203. 1882, 1,955,292. 1883, 2,263,092.	Income from Interest	1879, $2,033,650. 1880, 2,317,889. 1881, 2,432,654. 1882, 2,798,018. 1883, 2,712,863.
Divisible Surplus at 4 per cent.	Jan. 1, 1880, $3,120,371. Jan. 1, 1881, 4,295,096. Jan. 1, 1882, 4,827,036. Jan. 1, 1883, 4,948,841. Jan. 1, 1884, 5,002,514.		

TRUSTEES:

MORRIS FRANKLIN, WM. H. APPLETON, WILLIAM BARTON, WILLIAM A. BOOTH, H. B. CLAFLIN, JOHN M. FURMAN, DAVID DOWS, HENRY BOWERS, LOOMIS L. WHITE, ROBERT B. COLLINS, S. S. FISHER, EDWARD MARTIN, JOHN MAIRS, HENRY TUCK, M. D., ALEX. STUDWELL, R. SUYDAM GRANT, ARCHIBALD H. WELCH, WILLIAM H. BEERS.

THEODORE M. BANTA, Cashier.

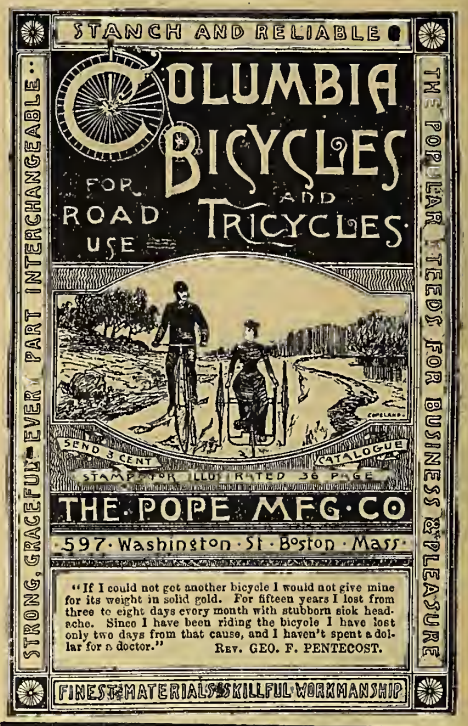
D. O'DELL, Superintendent of Agencies.

HENRY TUCK, M. D., A. HUNTINGTON, M. D., } Medical Examiners.

MORRIS FRANKLIN, President.

WILLIAM H. BEERS, Vice-President and Actuary.

HENRY TUCK, 2d Vice-President.



OPERA GLASSES *Microscopes, Telescopes, Spectacles, Barometers, Thermometers, Photographic Outfits for Amateurs.* **W. H. WALMSLEY & CO.,** successors to R. & J. Beck, Philadelphia. Illus. Price List free to any address.

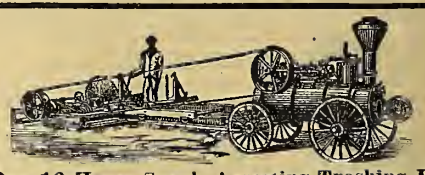
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and **Stereopticons** of all kinds and prices.—Views illustrating every subject, for **Public Exhibitions,** etc.—*Profitable business for a man with small capital.* Also, **Lanterns** and **Views** for *Colleges, Schools, Churches, Sunday Schools,* and *Parlor Entertainments.* 116 Page, Illustrated Catalogue, *sent free* on application.
McALLISTER, M'f'g Optician, 49 Nassau St., N. Y.

KNABE
PIANOFORTES.
UNEQUALLED IN
Tone, Touch, Workmanship and Durability.
WILLIAM KNABE & CO.
Nos. 204 and 206 West Baltimore Street, Baltimore. No. 112 Fifth Avenue, N. Y.

Carriages, Wagons and Machinery Run

Without grease or oil. No occasion to take off the wheels. A stevedore's wharf-block, with graphite bushing in sheave, ran 4 years in constant use hoisting coal. A box has been run on a fancy on a card in a woolen mill for last 3 months without grease or oil, 600 revolutions a minute, and 10 hours a day. Send for Circular. Address,
GRAPHITE LUBRICATING CO., Jersey City, N. J.



Our 10-Horse Spark Arresting Treshing Engine has cut 10,000 feet Pine Lumber in 10 hours.
Will burn wood 6 feet long, coal, straw and corn stalks. Send for Price List and Catalogue "S."
B. W. PAYNE & SONS,
Box 813. Elmira, New York.

Complete Manures.

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MAY 1884

AMERICAN AGRICULTURIST.



FOR FARM GARDEN & HOUSEHOLD.

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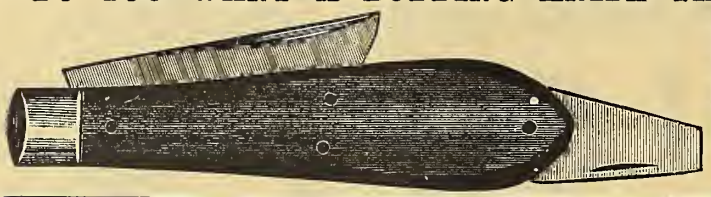
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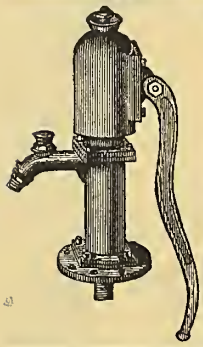
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(Continued from last month.)

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"BENEATH THE SKIES OF MAY."

Drawn and Engraved for the American Agriculturist.

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Contents of this Number.

Animal Ailments..... 204
Barn. A Medium-sized..... 6 *Illustrations*.. 203
Beans, What are English Horse?..... 212
Bee Notes for May..... 2 *Illustrations*.. 196
"Beneath the Skies of May"*Illustration*.. 193
Bluets or Houstonia as a Basket Plant..... 195
Boys' and Girls' Columns:
Kittie's Lesson.. *Illustration*.. 216
An Amateur May-Party..... 216
The Doctor's Talks.....2 *Illustrations*.. 217
About the Weed Lists..... 218
Acrostic Puzzle and Rebus..... 218
Our Hen and Quails.—A Girl's Letter. 219
A Boy's Poultry Keeping..... 218
Which is the Top of an Apple..*Illustration*.. 218
The Banyan Tree.....*Illustration*.. 219
Mr. Dyckman's Camelopard 219
Corals not Insects.....*Illustration*.. 219
Bulls, Vicious, Headgear for..... 197
Butter, Bogus..... 202
Carriage, Simple for Plows.....*Illustration*.. 210
Cattle, Western, Disease in..... 202
Chats with Readers..... 205
Chickens in the Garden..... 209
Colic, Spasmodic..... 197
College, American Veterinary..... 204
Destruction by Late Frosts..... 209
Dogs, and Dog-Shows..... 14 *Illustrations*..206-207
Draining Suggestions.....*Illustration*.. 196
Eggs, Selling by Weight..... 211
Farm Work for May 194
Farmers, Among the.....*Illustration*.. 199
Fennec or Zerda, The.....*Illustration*.. 209
Food, Cooked or Steamed, Profitable.....197
Forest Trees, Seed-Bed for 2 *Illustrations* 202
Freshets, Saving Stock from 210
Fruit, The Best Prices for the Best..... 203
Fruit Trees, Care of 211
Gate, A Double-Latched.....*Illustration*.. 198
Gate, A Lifting 2 *Illustrations*.. 210
Garden, The Flower and Lawn..... 200
Garden, Kitchen and Market 195
Garden, The Northernmost in the United States *Illustration*..... 200
Grafting, Side.....*Illustration*.. 195
Grind-Stone Rest, A...*Illustration*.. 198
Grounds, The Laying-out of Small..4 *Illustrations*. 201
Harness, Stool and Clamp for.....*Illustration*..211
Head-Gear for Vicious Bulls..... 197
Horse Beans, English.....212
Horse-power from a Mowing Machine 2 *Illustrations*.. 199
Household.
Holders for Whisk Brooms 2 *Illustrations*.. 214
Mantel Lambrequins—Catch-Alls and Splashers..... 214
Home Hints—Clothing, etc..... 214
Screen for Doors.....*Illustration*..214
A Home-Made Refrigerator..... 2 *Illustrations*.. 214
A Chapter on Potatoes..... 215
Make the Kitchen Pleasant..... 215
A Stand for a Night-Lamp.....*Illustration*.. 215
Out-Door Seats 2 *Illustrations*.. 215
Houstonia or Bluets.....195
Inventions, Our Record of Recent Agricultural..18 *Illustrations*..... 220
Laurel, The Great or Rose Bay..... 200
Leveling, Simple, for Draining, etc..4 *Illustrations*.. 211
Lightning Rods, How to Make and Set..... 204
Lumbering in California..... ... 198
Narcissusses, Old and New.....*Illustration*.. 195
Orchard and Nursery..... 194
Pasture, A Convenient..... 199
Peanuts, Mode of Planting..... 210
Plant, Good King Henry.....*Illustration*.. 212
Plants, Greenhouse and Window..... 200
Planting, Variety in Ornamental..... 213
Plows, Carriage for.....*Illustration*..210
Poultry—Breeds for Laying..... 197
Pumpkins, Growing with Corn..... 210
Road, The Law of the..... 201
Rose Bay, or Great Laurel..... 200
Salamander, The European.*Illustration*.. 209
Seeding, Propagation, Covering..... 196
Shrubs, Some Useful Ornamental....4 *Illustrations*.. 213
Sorghum, Cultivating in the West..... 196
Steamed or Cooked Food Profitable..... 197
Stool and Clamp for Harness...*Illustration*.. 211
Tests, Ayrshire Herd..... 210
Trees, Shade—Planting and After-care..... 212
Trees, The Care of Fruit..... 211
Truck, A Cheap Convenient.....*Illustration*.. 197
Vines, Wild About the House. 198
Willows and Willow Culture..... 197
Zerda or Fennec, The..... ..*Illustration*..209

Onward.

The host of new subscribers brought by old friends, together with the generous patronage of our advertising patrons, enable us to consummate our most enlarged plans for making the *American Agriculturist* of the very greatest value and interest to every member, old and young, of its great family of readers. As still another step to this end, we make what will be, especially to our long-time friends and readers, a most pleasing May Day

Announcement.

Mr. Andrew S. Fuller, author of "Small Fruits," a long recognized authority on horticultural matters, is hereafter to resume those labors which constituted so valuable a feature of the *American Agriculturist* in former years.

Col. Mason C. Weld, whose name, like Mr. Fuller's, is a household word among the *American Agriculturist's* readers, likewise resumes, with this issue, his "Among the Farmers." He will devote special attention to live stock matters.

Dr. D. D. Slade, the Veterinary Professor of Harvard University, is to write on the various Ailments of Animals, and to hereafter attend to all questions pertaining to such matters. He has no superior in this field, and writes direct from the farmer's standpoint.

Henry A. Haigh, the recognized authority on Farm Law, will discuss and reply to the various legal questions arising among the farmers and farm owners who are subscribers to the *American Agriculturist.*

Robert B. Roosevelt, the genial writer on out-door life for so many years, and the popular author of various books, will entertain and instruct our readers with his pleasant views of forest, field and river.

This strong array of old and new writers, together with our present powerful staff, indicate what the *American Agriculturist* is to be in the future. Beginning with this May issue, we leave each number to speak for itself.

Writers for the May American Agriculturist.

Dr. D. D. Slade, Mass.
Dr. George Thurber, N. J.
Prof. S. E. Thompson, Neb.
Dr. B. D. Halsted, N. J.
H. A. Haigh, Mich.
Col. M. C. Weld, N. J.
W. Z. Hutchinson, Mich.
Pres. A. Liautard, N. Y.
H. H. Harris, Me.
M. F. Smith, Mass.
Rev. Wm. Clift, Conn.
E. A. Long, N. Y.
Col. F. D. Curtis, N. Y.
Jas. Richardson, N. Y.
P. H. Jacobs, N. J.
F. Grundy, Ill.
R. G. Newton, Dak.
C. B. Clark, Ill.
Orange Judd, N. Y.
Andrew S. Fuller, N. J.
Robert B. Roosevelt, N. Y.
L. A. Beatty, Ill.
C. S. Currier, Mich.
E. E. Rexford, Wis.
Reuben Harlan, La.
W. R. Dunston, Va.
B. W. Jones, Va.
L. R. Fleming, Va.
M. E. Bamford, Cal.
Lieut. Fred. Schwatka, W.T.
J. Bartlett, Ont.
D. W. Plumb, N. Foundland.
C. J. Long, W. Va.
Rev. J. W. Guernsey, Ill.
Ethel Stone, N. J.
Agnes Carr Sage, N. Y.
Lisie Lester, Cal.
David W. Judd, N. Y.

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Beginning with this May issue of the paper, the remaining numbers for the year—seven in all—will be sent to any address for Seventy-five Cents. In order, however, to secure the Premium Engravings, it will be necessary to subscribe for one year, inasmuch as no premiums are given on any subscriptions for a shorter period than a year's time.

No Beginning and no Ending.

But inasmuch as every issue of the *American Agriculturist* is complete in itself, the annual subscriptions can commence now as well as at any other time. Subscribers can begin with any month, and have a complete year from that date.

Amerikanischer Agriculturist.

See elsewhere an important Prospectus of our *Amerikanischer Agriculturist*, of which a specimen copy will be mailed to any Post-office address on the receipt of two two-cent stamps.

GARDEN AND FARM-WORK FOR MAY.



Do not plant corn until the soil is warm and settled weather has come. A field planted the middle of April may be less advanced in June than one planted two weeks later. The corn crop makes nearly all its growth within a hundred days, and requires food in abundance and close at hand. Corn responds rapidly to any available plant-food, applied either as well-rotted manure or as a quick acting commercial fertilizer. Soak the seed in tar water and roll in plaster before planting, to keep off the cut-worms. Frighten away crows with bright strips of tin, small clapping wind-mills, and fine twine stretched from pole to pole throughout the field. If the ground is weedy, plant in hills, otherwise drills will be the most profitable. Mangels should be sown this month on rich mellow soil. Other kinds of beets may be sown early next month. Every farm should have a root crop as a part of a rotation. A root crop cleans the land of weeds and furnishes an abundance of food for farm animals. Do not pasture meadows in the spring; this is asking too much of any field. It is cheaper to buy fodder than to rob the meadow. If any tramping of the meadows in early spring is allowed by animals, let it be done by the horses while drawing out a good top-dressing of fine manure. Potatoes should be planted as soon as the soil is ready, and if early sorts are grown, the crop may get ahead of the beetles.

Live Stock Notes.

The work horses need the best of care and an abundance of wholesome food. The shoes may be removed from farm horses if the fields are free from stones. All horse labor should be pushed forward rapidly, so that during the hot weather of next month some leisure may be taken at noonday. Oxen are slow of motion, but most useful for many kinds of farm work. They need considerable time for feeding, and can not be hurried much at their work. Change the cows gradually from dry feed to pasture. Bring them to the stables early, and feed hay with some roots; give dry fodder the next morning before turning the animals out to grass. Calves need special care, as this is the time when "black quarter" and other serious troubles come upon them. Ewes, with their lambs taken from them, sometimes need some of the milk removed from their udders. After shearing, the ticks gather on the lambs, and may be quickly destroyed by dipping in tobacco water or some other effective dip. Tag the sheep before they leave the sheds for the pasture. Pigs thrive with a good run of clover. The orchard is the proper place for swine; they have good grazing and destroy many insect pests. Keep young chickens clean and dry. There is no better place for the coops than in the vegetable garden, where the young chicks will destroy many injurious worms.

Orchard and Fruit Garden.

Trees that have been heeled-in may be retarded by shading them. Planting should be finished as

soon as possible. If the trees have started, great care will he needed in handling them. Such trees should not be trimmed at planting. Grafting for the renewal of old trees may continue, taking great care in cutting away the hranches to make no bad wounds, as the bark now peels readily.

Grafting Wax.—Four parts of rosin and one part each, bees-wax and tallow, make a good preparation. If too hard, add more tallow, or if too soft, take less. The best way of using it is upon cloth. Take an old sheet or the skirt of a well worn dress; tear it into strips two inches wide, make the strips into rolls, and let them remain in the melted wax until thoroughly soaked through; remove and let them drain and cool. This waxed cloth may be torn off in pieces of convenient size to cover the wounds, and can he applied to make a complete covering. Squashes are a good crop for a young orchard. Potatoes, mangels, turnips, or other roots may he grown between the rows of fruit trees.

Tent-caterpillars. — If any eggs escaped, their "tents" or webs will soon appear in the trees. Remove them while small. Curculios attack the young plums soon after the blossoms fall, and the thorough jarring of the trees should begin early.

Mulching is far better than watering to save newly planted trees. Cover the ground over the roots with bog hay, old straw, or litter of any kind.

Strawberries.—Beds that were covered last fall should have the straw left on them until after the fruit is picked. The straw should be pulled away just over the plants. Pull up such coarse weeds as appear through the mulch of the bed.

Watch for the first appearance of holes in the leaves of Currants and Gooseberries, and use White Hellebore dusted on, or hetter mixed with water, a large tablespoonful of the powder in a pailful of water, and apply with a syringe or pump. Repeat a few days later, to destroy those which escaped or have hatched since the first application.

Young grape vines set this spring, should be allowed to push but a single shoot. If two or more buds were left, to guard against accidents, rub off all but the strongest, and keep the shoot from this tied up to a stake. Rose-bugs destroy the flowers of the grape, shake off these pests in early morning, catching them in a pan in which there is a thin film of kerosene floating on a little water.

Kitchen and Market Garden.

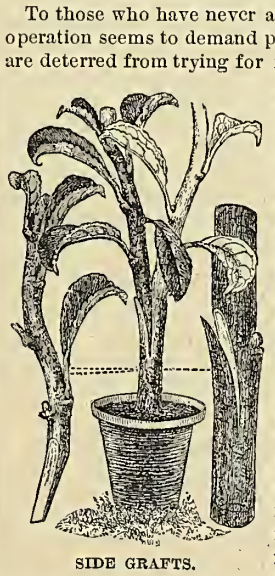
In many places the first of May is moving-day, and many change their place of residence this month. Though it may seem late to begin gardening, seeds sown and plants set out now will come forward with great rapidity, as the soil is now well warmed. Asparagus beds that were planted two years ago may be cut sparingly. Established beds should have every shoot cut, allowing none to grow until cutting stops. If a cold rain comes on, the seed of Lima beans will usually rot in the ground. Examine and re-plant. Weed beets and carrots as soon as large enough, and thin, using the young beets for greens. Keep cabbages and cauliflowers well hoed. Sow seeds for late crops in a seed-bed in open ground. Try some Savoys. Make a small planting of corn as soon as the season will allow, but do not put in the main crop until settled weather. Cucumbers may be forwarded by starting seeds in pots or on inverted sods, in a hot-bed or sunny window. When they are set out, cover at night by some kind of a hand-light or screen. Sow seeds in the open ground, protecting the plants in the same manner. Sow sage, thyme and other sweet herbs in a seed-bed, to be transplanted later. Plant a few horseradish sets in rich soil. It should always he taken up in the fall to prevent it from becoming a weed. Continue to transplant lettuce for a succession, and hoe often. Do not sow melons until the soil is warm; use an abundance of seed to provide for insects and accidents. Early weeding of onions by hand in the rows, and thorough cultivation between the rows, are needed, whether grown from seeds or sets. Early kinds of potatoes should be forwarded by good culture. A sprinkling of ashes and plaster at hoeing on some soils helps wonderfully. Tall peas should have brush or other support early. If allowed to fall over before they have these, they rarely do well. The best substitute for brush is wire, as described elsewhere. Sow for a succession. Cut away the rhubarb flower stalks as soon as they appear. In cutting spinach for use thin it, to leave plants at six or eight inches apart for the final cutting. Sow weekly. When the soil is warm, sow New Zealand spinach for summer use. For squashes make richly manured hills eight or ten feet apart for the running sorts, when the weather is settled, and sow an abundance of seed. Give a trellis or some kind of support for tomatoes when they are first set out, and keep them tied up as they grow.

The Houstonia or Bluets as a Basket Plant.

For those who cultivate wild flowers, writes Margaret Donaldson, the *Houstonia cærulea* is fine for rock-work, and it is one of the best of our early wild flowers for baskets. On points of worn-out land, I have seen single flowers growing in the grass, on branchless stalks not more than two inches high. But when set in a basket of leaf-mould they branch freely, spreading over the sides of the basket, and bloom profusely long after their companions have disappeared from the meadows. Their roots are so diminutive, that they will thrive in a very small vessel. I once saw a clump growing in the inverted lid of a tea-pot. Give them sunlight, keep the soil moist, and they will grow in a cup, scarcely larger than an egg shell. They bloom in April, and some seasons one may look long before they find them, at other times they make a feature of the landscape. In the spring of 1882, there were acres of sloping meadow land, sky-blue with these flowers; on the same slope the following spring, they bloomed under the grass, but nowhere thick enough to be seen at a distance. Their time of continuing in bloom is not much over a month, but their earliness, faint fragrance and delicate beauty, amply repay one for the small amount of labor required for their cultivation.

Side Grafting.

To those who have never attempted grafting the operation seems to demand peculiar skill, and they are deterred from trying for fear of failure. One of the simplest forms is the side graft, which is more easily performed than the common cleft-graft much used by florists and nurserymen in propagating camellias, some conifers, and other shrubs and trees. Unlike some other grafts it is not necessary with this to remove the top of the stalk. A clean downward cut is made in the side of the stock, and the cion, carefully cut to a wedge, is inserted, bringing its inner bark, on one side at least, in close contact with that of the stock. It is sometimes practised on fruit trees to replace a lost branch. It is not necessary to wax grafts of this kind; they are merely tied closely with bast matting or worsted yarn. The amateur will find much interest in practising with this graft as it will give him confidence to attempt more difficult kinds. It has been practised on herbaceous stems, even on those as tender as the melon, with success. The engraving shows the method, giving the stock, the prepared cion, and the two united.



SIDE GRAFTS.

Narcissusses.—Old and New.

Those familiar spring flowers, the Jonquil and and Daffodil, are really species of Narcissus, and these, together with the beautiful Poet's Narcissus, are to he found in large clumps in all old gardens. In most cases they have received no care since they were planted, but have gone on, sometimes for years, increasing and crowding and starving one another until we frequently find masses that have ceased to bloom. These are the only kinds of Narcissus generally known; the Polyanthus Narcissus not being perfectly hardy is rarely seen in gardens, though it is sometimes grown in pots. There are over twenty species of Narcissus, while the number of varieties is very large. The



THREE LEADING FORMS OF THE NARCISSUS.

flowers in all have six spreading petals, the perianth. These are united below to form a tube, at the mouth of which is a petal-like appendage called the cup or crown. It is this crown that gives to these flowers their peculiar beauty; it often differs in color from the rest of the flower, and varies greatly in size, being in some species the most conspicuous part of the flower. The relation this bears to the divisions of the perianth (or petals) serves to arrange the species in three groups. The Long-crowned Narcissus have the crown as long or rather longer than the divisions; figure 1, represents a flower of this group. In the Medium-crowned group the crown is half or three-fourths the length of the divisions, as in figure 2, while the Small-crowned division has the crown less than half the length of the divisions, as seen in the well-known Poet's Narcissus, figure 3. The species, many of them at least, have produced double varieties; the crown is lost, its place being filled by a mass of irregular petal-like bodies. Of late years, some of the European cultivators have hybridized and crossed the species with most excellent results, some of the hybrids having larger and more beautiful flowers than the species. Some of the hybrids of *N. incomparabilis*, figure 2, are extremely beautiful. In their present improved condition Narcissuses are attracting more attention from cultivators than they have formerly received, and they are well worthy of it. It is likely that the majority of the new kinds will prove hardy, and when they become more abundant cannot fail to be popular. In some of the new forms are exquisite tints of yellow, the crown and perianth each being of a different shade. The Poet's Narcissus, though one of the commonest, is one of the most beautiful. The perianth is of the purest white, the very shallow crown, a mere cup, pale yellow, with its margin crisped and of a deep scarlet. By giving it good soil and preventing it from forming large clumps, the flowers will be finer than we usually see them.



Bee Notes.

REMOVING BEES FROM WINTER QUARTERS.—Like many others, bee-keepers are often deluded by a few first warm days into the idea that spring has really come, and they proceed to remove the bees from the winter repository to the summer stands. Even should warm weather continue a week or two, so much the worse for the bees, as they spread out and commence rearing large quantities of brood. When the usual "cold snap" follows, the bees are driven into a compact cluster in the center of the hive, and all brood outside of the cluster—brood reared at the expense of many an old worker's life—is chilled to death. Leave the bees in their winter quarters until sure that warm weather has really come to stay, which, in this latitude (Genesee Co., Mich.,) is usually about May 1st.—The laborious task of carrying bees to or from the

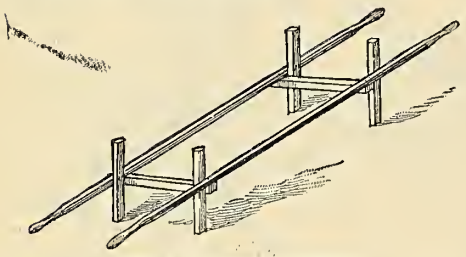


Fig. 1.—A HIVE CARRIER.

cellar, and the swaying about of the combs can be greatly lessened by two persons carrying the hives on a sort of hand harrow, like figure 1. Strips of some light, tough wood are bolted together, the legs extending several inches above the side rails, to prevent the hives sliding off when going up or down the cellar stairs. With this two men can carry four colonies with more ease and comfort to both themselves and the bees, than one man alone can carry a single colony.

GETTING READY FOR THE BUSY SEASON.—Now is the time to get everything ready for the busy season. This advice is not superfluous, for not only farmers who keep a few bees, but some of the "professionals," are prone to delay getting hives and other fixtures until swarms are actually hanging in the bushes; and supply dealers are weeks behind in filling orders. Let the hives be made, painted and stacked up all ready for those swarms that are always coming "before they were expected."—Also put together the section honey boxes, supplied with comb foundation "starters," and place them into cases; then no honey will be lost when the white clover harvest comes. The edge of foundation where fastened to the box must be warm and soft.—For this purpose place the face of a hot flat iron near a pile of "starters," and when one iron becomes cool replace it with another hot one.



Fig. 2.—WIRE COMB FOUNDATION.

WIRED COMB FOUNDATION.—The large sheets necessary to fill the brood frames have given much trouble by stretching, warping and breaking down. To remedy these difficulties pierce the top and bottom bars of the frame with small holes, through which stretch and fasten fine wire drawn taut (figure 2) and imbed these in the foundation sheet warmed until it is soft. To imbed the wires many bee-keepers use a lady's shoe button hook, with a small groove filed in the back side. The groove is passed back and forth on a wire, applying some pressure. With a press the foundation can be manufactured directly into these wired frames. The wires, being at the bottom of the cells, do not in the least interfere with brood raising.

The "one piece" section boxes, now so largely used, are necessarily made from basswood that will bend into shape; but this soft wood absorbs every drop of honey coming in contact with it and leaves a discoloration. Another objection to the one-piece section is, that the openings between both the bottom and top bar do not extend their whole length, and the shoulders left cause much trouble by contact with adjoining combs. The dovetailed sections made of white poplar are fully as white as basswood, do not absorb honey, and do not have the mischievous projecting corners. The one-piece sections can be put together a trifle quicker.

Cultivating Sorghum in the West.

The rapid increase in the amount of sorghum planted from year to year, has stimulated ingenuity to discover ways and means of doing the entire cultivation by horse-power. Sorgbum is a feeble plant and grows slowly at first, and unless the land is freshly turned up, weeds are apt to get up faster than the crop. The following seems to be the most successful plan: the land is plowed immediately before planting, or if done earlier, or in the preceding fall, the entire surface is cultivated with a two-horse corn cultivator before planting. The seed is planted quite thickly in drills, by using a two-row corn planter with small holes, moving the dropping lever quite fast, so as to drop the seed in an almost continuous stream. Those planters, that have a drilling attachment, are very convenient for doing this. At least twice as much seed is planted as is expected to grow, about six or seven pounds per acre is not too much. The most common mistake is to plant too deep, and much care is needed when a horse-planter is used, to avoid this difficulty. If the ground is moist, half an inch is deep enough, or even less will do. As soon as it is safe to do so without covering the young plants, go through the field with a straddle-row cultivator, taking care to have the inside shovels turned so as to throw the soil away from the plants. By setting them in this way, you can go much closer to the row than otherwise. Enough soil in any case will be thrown towards the plant, while you will stir the soil close to the young plants. After cultivation is completed, cross-harrow with any good harrow, going over the ground twice. This will destroy a good many of the plants, but as they were planted thick with reference to this treatment, no harm occurs, while those which are left are thoroughly hoed, and the soil mellowed. The whole surface ridged by the corn plow, is leveled down and put in fine condition for the next plowing. Should the cross-harrowing not thin the plants enough, the land may be harrowed the same way as the rows run. In ordinary seasons and on moderately clear land, this method of treatment will usually enable a grower to raise a crop without resorting to the hoe.

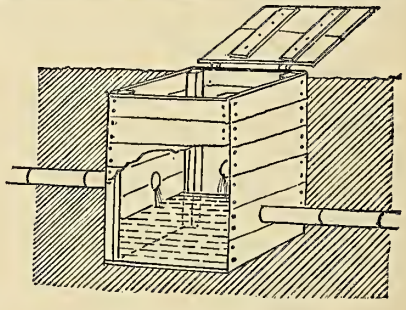
Seeding, Propagation, Covering.

The most carefully seeded meadow is the most productive. Grass seed should be sown with winter grains, because they grow thinner on the ground than spring grain; the young plants are less shaded, and the growth forms with stronger roots, and is better able to withstand the hot sun and dry weather. After harvesting the grain, the seeding is often destroyed, because the roots of clover and timothy are so near the surface that they dry up. The ground is crusty for want of cultivation and weight of snow after the grain is sown. The remedy is simple, but rarely used. The grain should be harrowed into the ground after it has settled, and is dry enough to mellow under the harrow. Winter grain is improved by harrowing, affording a lighter soil for the spread and growth of the roots, covering the field with stronger growth, consequently increasing the yield. This process insures the certainty of grass-seeding; as seed is expensive, farmers cannot afford its loss, or "trust to luck." Two crops cannot grow in the same place simultaneously. Filling the ground with all it can support of spring grain, and sowing grass-seed at the same time, expecting to produce a fine meadow after the grain, results in a feeble product and after harvesting the grain, the weak plants shrivel and die. Spring grain must be sown thinner when sown with grass—then what is lost in grain, is gained in thickness of the clover or grass crop. Thinly sown grain generally produces heavier, larger heads and more stems, consequently the crop is not lessened. Grass is as important to farmers as grain, and should not be sacrificed for the chances on the latter. It should be made the primary crop, for the soil is renewed by it while it is exhausted by grain.

Surface manuring and thorough tillage are absolutely necessary—the more mellow the land, the surer and better the crop. The seed should be sown after the grain is harrowed in, and levelled by a roller, which smooths and settles the surface, insuring quicker germination. When winter grain is harrowed, the teeth do not penetrate sufficiently to cover too deeply the grass seed. More care in this preliminary work will save the loss of seed and secure better crops. Dragging brush over a stumpy or rough field is a good method for covering grass-seed. Four quarts of timothy is sufficient to seed an acre of land prepared in this way; five quarts of clover upon same conditions. Double these quantities are sown because farmers expect losses that occur by careless preparation. Better expend in careful tillage the cost of seed wasted, and reap the benefit, than be burdened with a poor crop and an impoverished ground.

Draining Suggestions.

In laying drains, especially if tile-drains in quicksand, begin at the upper end and work down. Earth, silt, and settling mud would be likely to



A WOODEN SILT BASIN.

collect behind the workers if commencing at the lower end. In laying tile without collars, and even with them, it is important to cover the joints at least with straw, hay, spent tan, or inverted sods, lest sand work in, and by collecting in chance depressions caused by uneven settling, choke the passage. A silt basin is important in drains subject to much sand and clay. This may be a simple box of double boards or plank, nailed to two by four-inch scantling, its interior one by two feet, and high enough to extend from the ground surface, to a foot below the bottom of the tiles. The cover may be fastened on with hinges and a pad-lock, if likely to be disturbed by boys. This is set near the outlet or other point needed, with the entrance pipe a little above the outlet one. The sand and mud will collect in the space below, and may be lifted out with a hoe, after heavy showers or a strong flow of water in spring. To keep mice from nesting in drains in a dry season, cover the outlet with a screen of galvanized wire; or drive iron rods in front; or attach to the tile a short piece of pump-log, and drive nails or spikes inward toward the center, thickly enough to exclude toads, moles, and mice, and all small vermin.

Poultry—Breeds for Laying.

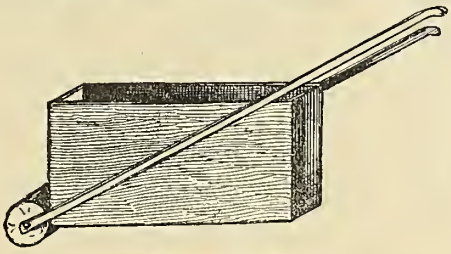
The best breeds of fowls for laying, are those that suit the climate in which they are kept. It is an oft-repeated inquiry as to which breed is most suitable, by those who contemplate poultry keeping. Such inquiry can only be answered by those who have experimented with different varieties in different locations. There is no doubt that the Leghorns are equal to any other breed for egg-production, but it does not follow that they are the most profitable fowl under all circumstances. They are divided into two classes—the single, and rose-combs—and there is a further subdivision, according to color. The single-comb varieties of fowls are subject to frozen combs in very cold weather, but when properly managed they escape harm. The difficulty may be overcome by "dubbing" them, as is done with Games, but as the principal points of the Leghorns are given to the comb, they would thereby be disqualified from competition at the fairs and poultry shows. A frosted comb would not be very objectionable to those who only breed fowls for profit and not for exhibition, but when the comb becomes frosted, the hen ceases to lay until the injured member is completely healed. As the comb may be frozen several times during the cold season, the loss of time from egg-production, owing to the effect of the temperature, would be quite an important item. The double-comb varieties, though exposing quite a large surface to the action of cold, have their combs closer to the head.

In thus noticing so small a matter as the comb, the object is to present one of the difficulties in the way of keeping a breed that never sits, but lays well. While the breed may not find favor in cold climates, that is no reason why it should not be popular in other sections. As the Leghorns have their virtues and faults, so do the other breeds of fowls. In raising fowls for market, many object to the Brahmas and Cochins on account of their slow growth, and this objection may be a strong one if the fowls are to be sent to market as chicks, as they do not feather until well advanced. If matured fowls are intended for shipment, the largest carcasses, with fine appearance, may be obtained from such breeds. The Plymouth Rocks, which grow fast, and are uniform in appearance when young, also make good market fowls when grown, but, while they are excellent layers, they are liable to become excessively fat when highly fed, especially when they are confined, which is a hindrance to egg-production. This may also be an objection to the Brahmas and Cochins. The best results are derived from Plymouth Rocks when they have free range. All breeds do best with freedom, but the larger ones are more contented under restriction. It is best, therefore, in selecting a breed for laying, to take into consideration its hardiness, fitness for market, time of maturity, adaptability to climate, and disposition. By selecting that breed which possess qualities adapting them to the conditions of the particular section of country, the best breed for laying as well as for other purposes will be secured.

Spasmodic Colic.—"*J. B.*," Lincoln Co., Kansas, writes: "I have a mare that acts very strangely. She paws and lies down about the same as though she had spasmodic colic. She eats and drinks not quite so heartily as when well. The attacks come two or three times a year."—The animal undoubtedly suffers from sudden pain of a spasmodic character, most probably in the intestines. Spasmodic colic is due to a variety of causes, but more especially to food, excessive in quantity or improper in quality, and too much cold water immediately after fatiguing exercise. Sudden and complete change of food may also bring about this condition, as will exposure to wet and cold. Of course cramps, or excessive sudden pain, may be due to other causes, and may affect other organs. It is well to note in this case the exact circumstances under which an attack comes on—the kind and quantity of food and drink taken, whether it occurs before or after exercise, the condition of the bowels, and whether food is swallowed greedily without proper mastication. Only thus can the cause be arrived at, and the proper treatment be selected. Some animals will continue to have spasmodic colic for years without appreciable cause. It is very important to keep the bowels loose, never costive. Bran mashes or roots given at intervals will be generally quite sufficient for this purpose without resort to drugs.

Very Cheap, Convenient Truck.

Mr. C. J. Long, Morgantown, W. Va., sends us a sketch and description of a cheap, easily made truck which he uses in cleaning out stables, etc. Selecting a grocery box of suitable size, he cut



A STABLE TRUCK.

from an old well windlass a roller one inch shorter than the width of the box, and bored a hole in each end, into which hard-wood pins were driven. A half-inch washer was put on each pin. The roller is held in place by two small strips of some strong wood. These have holes near the ends to fit the pins, and are strongly nailed to the sides of the box and extend back to a convenient length for handles. Any fairly regular round stick of hard-wood from the woodpile may take the place of the old windlass.

Willows and Willow Culture.

The common Osier, as stated in a former article, is not suited to the finer kinds of basket-work. The choicer willows are known to the English growers by names which give no clue to the species to which they belong, such as "Red Dutch," "Packthread" and Whip-cord" willows. The common Osier is largely used for making coarse and serviceable baskets, though it is not so good as the Golden-willow, which is always seen with us as a tree, but when properly cultivated, yields excellent rods. It is generally supposed that a damp soil is required for willow culture. This is a mistake, as the crop thrives best on a good grain land, and such is chosen in establishing a plantation. If the land is not in good condition, it is manured and prepared as for a grain crop. Willows are always propagated from cuttings, made from stems of a single year's growth. The cuttings are made a foot long, and sharpened at the lower end. The common Osier is set out twelve by twenty inches, and some of the finer kinds as close as eight by sixteen inches. These are the extremes, and other distances are given to other varieties, according to their size. All kinds are set as closely as they will flourish, in order that the shoots may grow up straight and without branches. In setting out the cuttings a planting frame is used. This is made of slats, held in place by end pieces. These slats mark the distances of the rows, and the places for the cuttings in the rows, are shown by notches on the slats. The planter sets a cutting opposite each notch, and forces it, in a slanting direction, quite into the ground with his hand, which is protected by a heavy glove. The surface of the plantation must be kept clean, using a cultivator at first, and when the shoots prevent this, hoes are used. When the leaves fall, the crop is cut. A strong curved knife is used, and the cut is made close to the ground. Though the first year's crop of rods may be of very little value, they must be cut in order to be out of the way of the next year's growth. The second year's crop is usually a profitable one. By this annual cutting the roots do not extend far, and are not difficult to remove when the soil is required for other crops. Every farmer would find it convenient to have a few willows to furnish rods for withes and other uses. By cutting them close to the ground each fall, they will last indefinitely.

Steamed or Cooked Food, Profitable.

Mr. B. J. Stone, Westboro, Mass., has for twelve years fed steamed food to his herd of forty-five animals, from early fall until pasturing time the following spring. He has a twelve horse-power boiler in the basement of an L adjoining the barn, over which is a six horse-power engine, a plunge pump that raises water into the boiler, and a tank near the steam box and mixing trough. In the story above there is a large power cutter, that cuts all the corn-fodder, straw, and second quality of hay used. It is cut into one inch lengths. To three hundred lbs. of this cut fodder, one hundred lbs. of grain, four qts. of salt, and enough water to moisten it are added, and mixed in lots of eighty lbs. each to insure thorough mixing. This provender is pitched into the steam-box, which holds enough for one day's feeding. The first feeding is at seven P. M., the second at seven the following morning. At noon the animals are watered, then fed one hundred and twenty-five lbs. best quality of dry hay. The water which settles under the false bottom of the steam box, from about eighty gallons used at a steaming, is converted into a hay tea. This is mixed with sufficient wheat bran to make a mash, and is fed to milch cows and young calves. This food being well seasoned, is very palatable, readily eaten, and quickly digested. The warm food, together with the warm stable, keep up the animal heat, and a large flow of milk is the result. The cause of so many failures in steaming food is, in part, due to not using any grain, and allowing the steam to come in contact with the feed direct from the boiler. Here the steam is let into the bottom of the steam box, and softens the whole mass. The cooked grain is taken into the stomach of the animal, masticated with the cud, and nearly all of its nutriment thereby extracted. Below is an estimate of the daily cost per head. One-half of the fuel consumed, has been deducted and charged to the house, as this same boiler supplies steam, and heats sixteen rooms.

300 lbs.	hay,	@ $10.	per ton		$1.50
125 "	"	@ 20.	"		1.25
100 "	grain,	@ 30.	"		1.50
75 "	bran,	@ 20.	"		.75
125 "	coal,	@ 6.40	"		.40
					$5.40

Forty five animals at five dollars and forty cents daily, gives twelve cents per head a day.

Simple Head-Gear for Vicious Bulls.

Dr. L. D. B., of Vista, N.Y., writes us, that a young Jersey bull, inclined to exhibit a cross disposition, and to make too free use of his horns, yet being too valuable otherwise to part with him, the following device rendered him harmless and docile. With a quarter-inch auger a hole was bored near the tip of

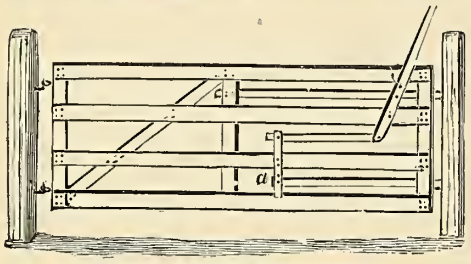


A BULL WITH HEAD-GEAR.

each horn. Through these holes a number ten copper wire was tightly stretched between the horns, and three wires run to the ring in his nose, as shown in the engraving.—This will answer for younger animals not very vicious, but very large fellows would need something much stronger than a number ten copper wire; and even if a half-inch steel rod were used, a very unruly animal would crush a man with the rods themselves.

A Double-Latched Gate.

In answer to several calls for double-latched gates, we present the form shown in the engraving. There are two latches fastened to a jointed lever, so that when the upper end or handle is pushed backward or forward, the latches both move in the same direction. The construction of the gate, and the form and arrangement of the latches and lever,



A GATE FOR ALL LIVE STOCK.

are plainly shown. The importance of a double-latch to a gate is understood by all those who wish a secure barrier to both large and small farm animals. Horses and pigs, cattle and sheep, are alike kept within bounds by this method of fastening a gate.

Lumbering in California.

M. E. BAMFORD.

In riding through the coast range of hills east of Oakland, one sometimes sees by the roadside piles of wood ready cut and waiting for the Portuguese wood-chopper to bring it on his wagon down the long, dusty road to town. These men are met every little while, in the road, driving their carts to their daily labor, often carrying with them two or more dark-eyed children.—These Portuguese are very proud of their small, brown, two-roomed houses with their queer gardens of hollyhocks and marigolds seen once in awhile away down in some little nook shut in by hills. Many of them, who knew what poverty meant in their native country, feel rich as a king in the possession of a little garden-patch and a regular income from wood-chopping. What these are doing in miniature here is done on a much larger scale throughout the great forests of the northern half of California.—One of the most extensive lumbering regions is Humboldt County. Another lies between Truckee and Auburn. Along the Sacramento and its branches and the Pit River and its tributaries there are thousands of acres of fine wooded land yet untouched, and the Sierras themselves are an inexhaustible source of lumber, as the forests of the western slope cut down thirty years ago are already replaced by new trees.—The chief kinds of lumber in California are the redwood, the cedar, and the sugar and yellow pines of the Sierras. The redwoods are mainly found near the ocean, between thirty-seven and forty-two degrees. Those north of forty degrees are mingled with cedar forests.—The redwoods of Humboldt County are large to handle, and there have been different inventions for reducing them to lumber. Many logs are nine feet through, sometimes twice that, and of course much too large for an ordinary circular saw, which is never over six feet in diameter. Such logs are often first halved by wedges or powder. Those seven feet or more in diameter are divided by a "triple circular saw," as it is called, in reality there are four saws. Two of these take off a top slice, while the double circulars are cutting through the rest, the whole being done by one motion of the saw. This is peculiarly a Californian invention, necessitated by the great size of the trees.—Steam logging-machines are used in Humboldt County, the invention of John Dolbeer, of San Francisco, and are a great improvement on the former long ox trains.—A queer contrivance is used in loading redwood lumber on vessels when there are no harbors. Vessels are fastened off the shore by buoys, and a long wooden lumber-chute is stretched to them from the shore, the land-end being somewhat elevated above the other. Down this the boards and railroad-ties fly with great velocity, but a strong brake is arranged to check the speed near the vessel, and the lumber is let quietly down.

In the Sierras the sugar-pine is most highly esteemed for lumber, and is sent down the mountains in slides. Drives are used wherever there are streams, but in certain regions would be almost impossible without the V-flume, invented by James Haines, a Nevada man. He had expended all his capital on a square flume for transporting wood from the mountains, but, to his utter dismay, the wood stuck fast in places, and the water running over washed out the foundations of the flume. Not utterly disheartened, he mended the flume, but only to fail again; and others had a similar experience. Haines studied over the matter a long time with no success, until finally his little children helped him out. He noticed them throwing cobs and chips into a small V-shaped trough used in irrigating his garden, and that however many were thrown in there was no clogging. He changed his square flume to the V-shape by putting in boards to form a right angle at the bottom, flaring outward at the top. It was a success, he regained his money and this form has been in general use ever since in the Sierra Nevadas. They usually cost about three thousand dollars a mile, but in some steep, difficult places have run up to twenty thousand dollars a mile.—A great deal of the sugar-pine is made into doors, sashes, cornices, etc., and shipped to Central America, Mexico and Australia. The sugar-pine is much more durable than the white, is but little heavier, and is easily polished. It grows at an elevation of five or six thousand feet.—Though many thousand men are employed as wood-choppers the demand for more laborers is constant, and frequent notices in the mountain newspapers call for wood-choppers. Truckee, in Nevada County, on the Central Pacific Railroad, in the midst of a forest, carries on a large lumber-trade, and much charcoal is made here. All the snow-sheds of the Sierra Nevadas were constructed of lumber furnished by this town, as were also the railroad-ties and bridges of the Central Pacific. A single Truckee firm has contracted to supply ten thousand cords of wood annually for the next ten years. Then, too, the Southern Pacific Railroad is carrying enormous quantities of Truckee lumber to the treeless districts of Arizona and New Mexico, for use in the mines, on railroads and in building little towns springing up everywhere. In fact, about all the lumber used along the whole country traversed by the Southern Railroad comes from California, and there is a large demand for our lumber from South America and China.—Little narrow-guage railroads are being built in several northern parts of the State to bring timber down to the main railroad lines. On Lake Tahoe is a steamboat specially made for towing rafts across the lake, whence the lumber is taken by a railroad to the top of the mountains and sent through a flume to Carson. A great deal of this timber is used in Virginia City and in the mines.—The first lumber ever prepared for sale in California was cut in Sonoma County, in 1838, by a Mr. Dawson, who prepared it with a whip-saw. The first saw-mill in the State was started, in 1843, at Bodega Bay, in the southwestern corner of this county; and this was the only saw-mill in the State until after the Americans took possession of it. The second one was begun in San Mateo County, and the third was Sutter's saw-mill at Coloma, but it did nothing with lumber, for it was while excavating the tail-bed of the mill that gold was found, and California was soon filled with an excited crowd too eager for gold to bother with lumber.—There are now seventy-nine manufactories of lumber in San Francisco alone, and the lumber stevedores there have quite an association, the "Lumberman's Protective Union," which spends several thousand dollars yearly in caring for their sick.—There is a good deal of interest just now in buying up the timber lands; the Government price being the same as that for mineral land, $2.50 per acre in divisions of one hundred and sixty acres. This interest dates from last summer, when a Buffalo, N. Y., syndicate purchased the finest lumber tracts in the State. Now the newspapers are teeming with advertisements of timber lands, and there is every prospect that many places yet left undisturbed because too far from any railroad transportation, will soon be opened.—But though there is so much lumber in the State, the production being about three hundred billion feet annually, yet we have no hard-wood suitable for making plows, casks, etc., and are obliged to import about three million feet of hard-wood annually from the Mississippi Valley.

Wild Vines About the House.

EBEN E. REXFORD.

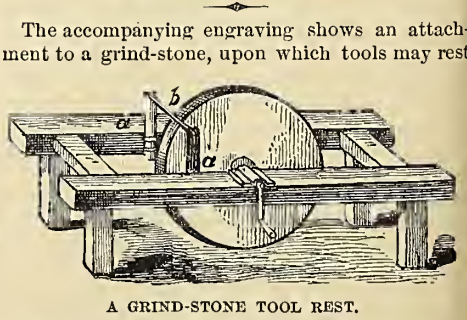
While admitting that many foreign plants are all that is claimed for them, I like our own native ones best, because I see great merit in them. I never have understood why persons of excellent taste should neglect them, unless it is because they are not familiar with them. There is no finer vine for use about the house than the Virginia Creeper, (*Ampelopsis quinquefolia*). It is found almost everywhere at the North and is hardy. It grows rapidly, is easily transplanted, has beautiful foliage, and is a miracle of gorgeous coloring in autumn. After the leaves have fallen its purple berries are more ornamental than the flowers of many plants. It is, or should be, to us Americans, what the Ivy is to the Englishman. If you want something to drape the veranda, you can select nothing better. If you wish a vine to climb up to, and all along, the eaves and around the second-story windows, this is the very plant to get. The Virginia creeper is a robust, self-reliant vine, and will take care of itself and delight all with its luxuriance if it is given half a chance.

Another very desirable vine is the Bittersweet (*Celastrus scandens*). It has beautiful, bright foliage, which is seldom infested with insects. During the later part of the season its clusters of scarlet berries, enclosed in orange husks, which part and disclose the fruit within, are showy enough to suit any one. These berries hang on all winter if the birds let them alone. For verandas and porches the Bittersweet or Wax-work is quite equal to the Virginia creeper, and that is high praise.

Another most beautiful plant for those who do not consider that beauty depends on bright and vivid color, is our native Clematis, or Virgin's Bower. This vine has fine and vigorous foliage, and in July is covered with thousands of delicate, white flowers, of delicious fragrance. One of the finest effects that I have ever seen produced by growing two plants together on a trellis, was made by training a Clematis among climbing roses. The contrast of the pink and white flowers was simply exquisite, and the dainty grace of the Clematis added a greater charm to the roses. For use in vases in the house, the long sprays of Clematis, when in bloom, are finer to my mind than anything else to combine with flowers of vivid color. It is easily transplanted and, like the other two native climbers, will take care of itself.

A Grind-Stone Rest.

The accompanying engraving shows an attachment to a grind-stone, upon which tools may rest



A GRIND-STONE TOOL REST.

while being sharpened. It consists of two small upright pieces, firmly fastened to the sides *a*, *a*, of the grind-stone frame, and bearing a cross-bar, *b*, at their upper ends. One of these rests can be made in a short time, and will add greatly to the comfort and convenience in grinding various tools.

A Convenient Pasture.

A pasture close to the farm buildings is a great convenience, and will save much valuable time during the busy season. The work horses may be turned into such a pasture in the evening after they have eaten their ration of hay and grain. It is an easy matter to bring the horses in again in the morning for their feed, before it is time for work. The cows may go to the back feeding ground for the day, and into the front pasture to pass the night. Boys who are tired from hard work through the day, appreciate the convenience of a pasture close by the milking ground. The cows are more contented if kept near the barns at night. The gates and other entrances to this night pasture should be arranged to save all possible steps, both from the horse stable and the milking yard. Some may object to having horses and cows in the same field, but the writer has concluded, after several years' experience, that there is no danger with any ordinary animals. Young stock of all kinds will be safer if kept from the old in a separate pasture.

This convenient night pasture should be permanent, and furnish good feeding to the horses and cows throughout the whole season. It therefore needs to be kept in good heart. If naturally rich, the droppings from the animals will keep up the fertility for several years. A man with a manure pick or mallet, should go over the pasture each spring, and loosen and scatter the droppings. The mallet consists of a block of wood a foot long, square at one end and pointed at the other, into which a stout handle is fastened near the middle.

A top-dressing of well-rotted manure should be given every two or three years, or still better, a light dressing each winter. A hundred pounds of nitrate of soda per acre in early spring, aids greatly in giving a vigorous start to the young grass. If coarse weeds appear, they should be rooted out before they become thoroughly established or ripen any seed. A flowing spring in a central location, is of great value in any pasture, and especially here where cows may drink after being milked, and again early in the morning. It will also save much labor in watering the horses before and after work. If a flowing spring cannot be found, the next best water supply is a well with a wind-mill pump.

A pasture properly manured, kept free from weeds, and thickly seeded with a large variety of grasses, may be as permanent and profitable as any field on the farm. The night pasture does not enter into the regular rotation adopted for the other fields.

Horse-Power from a Mowing Machine.

Mr. C. S. Currier, Almont, Mich., sends us a sketch and description of a horse-power and "jack" made from an old mowing machine. The whole cash outlay was fifteen dollars and sixty-three cents. The upright frame of the power is

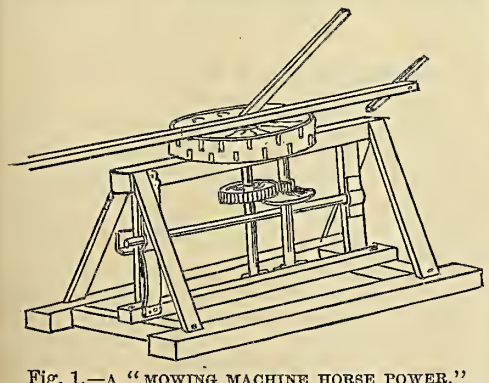


Fig. 1.—A "MOWING MACHINE HORSE POWER."

the old machine woodwork set up sidewise with one of the drive-wheels on top. To this is attached a draft lever twenty-two feet long, with hooks on each end so that one or two horses may be used. The lever and lead stick are bolted to the rim of the wheel by a hook bolt on each side. The fly wheel on the "jack" is the other wheel of the mower. This wheel was removed and the shaft cut off even with the frame. The end timbers of the "jack" below the wheel are cut half down so as to let the wheel as low as possible and have the belt clear. The left side shows the way the tumbling rod is attached, and let down for the horses to pass over easily. The rod is attached in the same manner to the power. In figure 1 is a collar in which the "shipper" worked to throw the mowing machine in gear. The "shipper" was removed. The collar is held down by its weight. When the

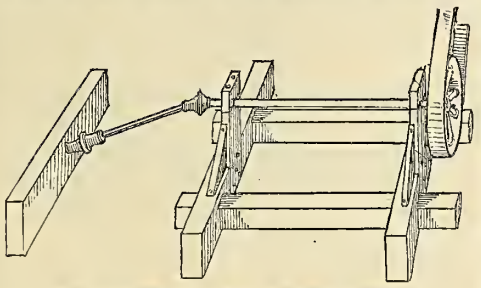


Fig. 2.—THE "JACK" OR BELT WHEEL.

"jack" wheel runs faster than the power this collar rises and lets it run until the power obtains the same speed, when it falls down and the power is in gear. This machine is light and strong. It will furnish all the power that is required to shell corn or cut fodder, and in fact anything a two-horse power is able to run. Use a four-inch rubber belt.

Among the Farmers.—NEW SERIES.

BY ONE OF THEM.

In going about more or less among the farmers, I find that those who make money, do so by producing specialties, and rarely by their general farming. He who has been farming for ten years, or even for five, to say nothing of him who was brought up on the farm, and has not found out what he can raise that pays best, is not wide-awake. One class raise hay to sell, buying manure from the town, and find this more profitable than to feed it. Another makes early potatoes a specialty, or perhaps combines these with milk (most country boys know potatoes and milk go well together). Others calculate upon some other crop for their principal source of money. Fruit farming has attractions for those who can secure pickers at the time small fruits or peaches are ripening, and a good many try some particular vegetable, like sweet corn, celery, Swedish turnips, or cabbages. Even where the old system prevails, and the ancient rotation of corn, potatoes, or oats, winter grain, and grass is the universal order, one man's specialty is well-fatted beef, another's early lambs, another's turkeys, and yet another prides himself on his pork. The class of those who raise thorough-bred animals, horses or cattle, sheep or swine, dogs or poultry, is larger, and so attractive is this, that many more undertake it than have either the knowledge or patience to make it a success. They are good customers for those whose herds and flocks have achieved fame, and thus they are useful.

Cattle Ties.

Their name is "legion," and while there may be no novelty in the one which I write about, there is merit in it, and for most people that is better.

The stanchion has its advantages, which are so great that farmers who are not cruel, and who may on the contrary be regarded as intending to be merciful to their beasts, use them. The cattle are resigned to them, much as the man said his wife was resigned to dying, "there was no help for it, she had to be." Neck chains attached to a ring to slide up and down upon a perpendicular bar or rod, give the cows more freedom. They can lick one side at least, and lie down with the appearance of comfort which they can not do if in the stanchions.

The chains which I am now using, and with which I have no fault to find, combine the advantages of both stanchions and the common neck chains, besides sundry merits of their own. The idea is not original, I saw something of the same kind at a breeder's establishment some time ago.

My floors were arranged for stanchions, which never were put in, but instead, I had round bars set perpendicularly four feet apart, upon which the common neck chains were used, there being short partitions between the cows. These partitions I had recently cleared away. A two-inch plank, eight inches wide, set on edge, forms the front of the manger or feeding trough, and the round bars stand close to this. The tie-chains each consist of two rings, *r*, which slide up and down on two of these bars; the rings are connected by a chain which has a small ring, *s*, in the center; attached to this ring is the usual neck-piece *n*, and a snap-hook, *h*. Thus the cow is fastened to the middle of the chain, between the posts. She has free motion of her head, up, down, and sideways. She cannot reach her neighbor on either side. She cannot steal their feed, nor touch them to do injury with her horns. Yet she can lick both her own sides, can get up or lie down without straining or slipping, and has a limited back and forward motion, so that she can neither step forward into her manger, nor backward off the floor, over the edge of which the manure is dropped as nicely as if she stood in stanchions. The accompanying engraving gives the reader an idea of how to have these chains made. I obtained mine through a wholesale chain dealer, who had a few dozen made up according to my description.

If I was to suggest an improvement, it would be to have the center ring furnished with three snap-hooks, one to fasten the neck-piece, and one to connect with the ring-chain on each side. Thus the chain might be made shorter by taking up one or two links at will, in order to fit posts set a little closer, or to give the cows a little more liberty. I have never had a cow get her foot over the chain, or when one place was not filled, attempt to lie down across the stall.

Farm Chains.

Speaking of chains, I am amazed to know the difference in chains. I have been in the habit of buying at agricultural warehouses the best trace-



CHAIN CATTLE TIE.

chains I could, and nothing has been more common than for them to break. Links snap off, the chain breaks in two, the links bend sometimes, and they wear out very fast. We wire them or link them together, and so make out to use the patched things. Other people have the same experience. The reason is, that the store-keepers buy cheap American made chains, trusting to our ignorance of better ones, charging a round price for them, and expecting us to buy more as soon as they break. One advantage of being near New York, is that for some things which a farmer must purchase, one can go to headquarters. Now I have a set of trace chains, which will last as long as I shall have use for them.

Profitable Pork.

There is a constant demand in the New York market for small pork, and people are becoming fastidious. The effort to supply this demand by thin, poorly grown pigs of eight months to a year old, is vain. Such are not wanted, but plump four or five months' pigs that weigh one hundred to one hundred and twenty-five pounds. These pigs bring the highest market price, and may often be disposed of to special customers, at a considerable advance upon the prevailing prices in the market.

I was visiting a large farm a few days ago, where big Chester white brood sows are used, crossed with small Yorkshires, and a really beautiful class of pigs produced. They seem always fat, are extraordinary easy keepers, and are so plump, small-boned, small-headed and white as snow. The sows are great milkers, have big litters, and the pigs

grow like weeds. They are fed chiefly on skimmed milk, with a little meal and bran, and are hardened off before killing with corn or other grain, but require very little. These pigs until a short time before they are killed, have the run of an extensive manure cellar, where it is warm in winter and cool in summer, so that they are always comfortable, and their growth always rapid. I do not know that the market is ever glutted with this style of pork. For its economic production, however, skim-milk is almost an absolute necessity. I believe the best pig pork that can be made, is that of a first cross between large Berkshire sows, and small Yorkshires. They are always white, compact, small-boned, very quick growers; keep fat with food upon which pigs of the coarse breeds would half starve, and the pork partakes of the character of the Yorkshires; the fat and lean is interlarded, and juicy and tender. The Essex produces a similar cross with Berkshire sows, but the pigs are black, hence rarely favorites at the North, though prized in hot climates as they are free from skin diseases, and not poisoned by the "Paint-root."

The Flower Garden and Lawn.

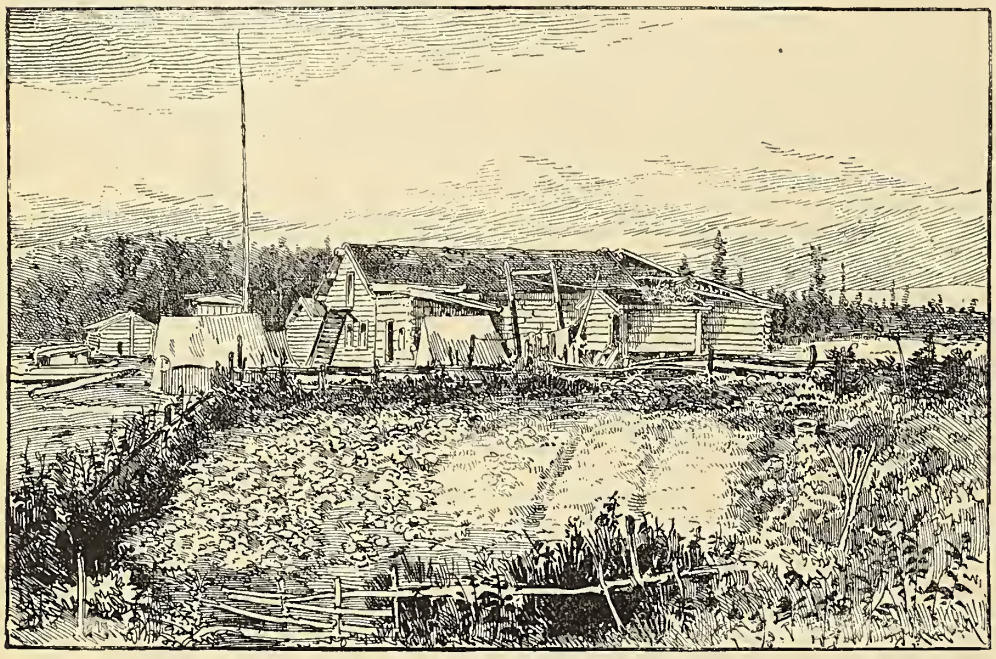
It is late to expect the best results from sowing grass seeds, and if the lawn is of but moderate size, it will be better to lay sods. The turf from a road-side or pasture should be well beaten down to bring its roots in contact with the soil. If grass-seed is sown as late as this month, it is customary to add a sprinkling of oats—say a quart to a bushel of grass-seed. The object of this is to afford shade to the young grass, and it is well enough if the oats are not allowed to go to seed. They should be cut early. The lawn should be mowed with a lawn mower, every week or ten days, until dry weather comes, and then the frequency should depend upon the growth. Do not cut up the lawn with too many beds. Place them near the drives or walks where they will be seen. They may be planted in masses of one kind each, or in ribbons of contrasted colors. In either case make the soil rich, and keep the grass margin well defined.

This is the month in which nurserymen advise evergreens to be transplanted. Success with evergreens depends upon keeping the roots from drying. If the roots of a deciduous tree dry out, they can be restored. Not so with the conifers. If their roots are once allowed to dry, no moisture will restore them. Whether evergreens are to be removed from a nursery, or from pastures, keep the roots well covered. When they are set out, if several stones, as large as one can lift are laid over the roots, they will anchor the tree, and serve as an excellent mulch to keep the surface soil moist.

After the fall-planted bulbs—Tulips, Hyacinths, Narcissuses, etc., have bloomed, do not disturb them as long as the leaves remain green. When the foliage begins to turn yellow, the bulbs may be taken up, dried, and kept until time to plant next autumn. Gladiolnses, Lilies, etc., may now be planted. Tuberoses may be left until the soil is well warmed, or they may be started in boxes of earth in a sunny window. If no hot-bed is at hand, place dahlia roots in a sunny corner, and cover them at night. When the buds start divide the roots.

Northernmost Garden in the United States.

In the summer of 1883, a small exploring party, under command of Lieut. Schwatka, of the U. S. Army, crossed the coast range of the Alaskan Mountains from Chilkat, and reached the head of the great Yukon River, over two thousand miles long, and there built a raft and floated down this stream over one thousand three hundred miles, exploring and surveying it as they went along. At Nuklakayet, some seven hundred odd miles from its mouth, the first white trading station was encountered, although a few abandoned ones had been met before—and the raft exchanged for a civilized boat. Nuklakayet is near the junction of the Yukon and Tanana, in latitude 65° 08′ North, and therefore eighty-five geographical, or ninety-eight common miles from the Arctic Circle. The station was kept by Mr. A. Harper, and here he had raised a small garden of vegetables, as shown in the illustration from a photograph taken by Lieut. Schwatka's party. This garden is the most northern one in the United States, within a day or two's journey of the Arctic Circle itself. The predominating vegetables were turnips, the largest of which raised last year weighed a trifle over six pounds. A few other hardy plants make up the small, but interesting garden. The greatest obstacle in gardening in this valley, is the dense swarms of mosquitoes that abound from the time the snows disappear in the spring, until frost comes in the fall, and makes life a burden for all kinds of animal existence. Another almost equal, is the character of the ground. In winter, with the thermometer at from 50° to 60° below zero, the soil freezes to six or seven feet in depth, and in the short hot summer it thaws but two or three feet, leaving a substratum of ice that holds the water, and makes even the sides of the hills marshy, and more like a bog than tillable soil. This marshy character gives rise to a luxuriant superficial moss, that grows everywhere and makes walking toilsome, and cultivation almost out of the question. Mr. Harper has chosen a southeastern slope on the river bank, and here the immediate drainage has helped him to raise this phenomenal garden. The northernmost spot on the globe where rye and oats ripen, is at Kengis, in the Swedish Province at Norrbotten, forty-nine miles to the north of the Arctic Circle. The northernmost place where corn matures is at Muoniovara, ninety-eight miles north of the Circle, and is located just the same distance above, that Mr. Harper's garden is below it.



THE NORTHERNMOST GARDEN IN THE UNITED STATES.—*Engraved for the American Agriculturist.*

The Great Laurel, or Rose Bay.

Among the finest native flowering shrubs in this country is the Great Laurel (*Rhododendron maximum*). So far as foliage is concerned, there is nothing finer among the cultivated Rhododendrons. Were it without bloom, it would be an attractive shrub in any ornamental ground. But the blossom, though inferior to most of the seedlings of the *R. Catawbiense*, is still charming in a state of nature, and both foliage and flower have been wonderfully improved under proper treatment. Of course the best are to be chosen where means are abundant, but the prices of the cultivated varieties are still so high, that our rural population do not feel that they can afford them. But the *R. maximum*, in many localities, is as common as almost any other shrub, and can be had for the trouble of transplanting. This Rhododendron is found from the southern part of Rhode Island, through New Jersey, southward, and is seen in great profusion in the mountainous regions of Pennsylvania and further South, and is one of the attractive features of a railroad trip through that region in the early part of July. It was a great favorite with the late Asa Fitch, and his place at Fitchville, Ct., had large plantations of this shrub. It was the most striking feature of the place, both in summer and winter. In its natural state, under the shadow of large trees, the shrub grows to fifteen or twenty feet high, has a straggling habit and the trunk reaches a diameter of six or eight inches. In a congenial soil, which should have a large portion of peat and sand, or leaf mould and sand, it grows much more compactly, the foliage is more dense, and the flower buds, which form in the latter part of summer, are greatly multiplied. In village lots, where room is scarce, it can be planted in the border near the house, or by the line fence, though, like most other plants, it needs room and sunlight for perfect development. In its natural habitat it grows freely from the seed, and young seedlings are readily gathered for transplanting to nursery rows or to be set in place. There is no special difficulty in transplanting or managing the plants, aside from the peat and sand which best meet its wants. In the wild state it has a tendency to bloom more profusely in alternate years. In cultivation, the early removal of the very numerous seed pods after blossoming will remedy this imperfection.

Green-house and Window Plants.

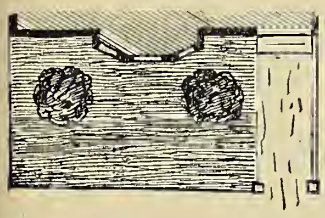
It is usually the custom to turn everything out of the green-house on the approach of warm weather, but with a little care in watering and shading, the plants will do much better, and be less liable to injury from insects, and accidents, than if turned out. If plants are to be removed, place them where they will be sheltered from heavy winds, and not be exposed to full sun. They should also be where their condition as to water will be noticed. Plants turned out from the pots and planted in borders, are seldom worth taking up again at the end of the summer. It will be well to make cuttings of such plants and start anew. Fuchsias and cactuses for the most part are summer bloomers, and may be usefully employed in decorating the veranda. They show best when seen from below. All repairs in green-houses, glazing, painting, etc., should be made in summer, that the houses may be all ready long before they will be needed.

The Laying Out of Small Grounds.

ELIAS A. LONG.

If one has grounds of several acres to embellish, a garden architect is likely to be employed, as it requires not only taste, but skill and experience, to manage so large an area to the best advantage, while the small areas are frequently undertaken by the owner himself. In the embellishment of small plats, such as the front yards in cities and villages, a considerable variety can be produced by the proper management of grass and shrubs, with climbers over the verandas or porches at the doors. In figure 1, two shrubs only are used with climbers at the house. These shrubs may be a Weigela and a Rose of Sharon, or any others that may be preferred. In figure 2 a larger number of shrubs is used, and these arranged in masses or groups. If the ground where they stand is somewhat undulating, a greater variety in the effect will be produced. Only few shrubs being used, the selection should be choice, consisting of those that afford a good variety of tints, in foliage, and flowers, and in their season of bloom. Some of the number might be dwarf evergreens, to give the eye something to rest on in winter. Small-sized shrubs proportioned to the size of the ground are to be chosen usually in such places; the geometrical or straight lines of the house, street and walks have such an overpowering influence, that there is little chance to work for the higher garden effects of breadth and freedom. And yet in these plans the principle upon which such effects depend is observed to the full degree allowable in so small an area, and with good results.

The Parisians have a pleasing mode worth noticing of using flowers in decorating their lawns. It consists in running a narrow border several feet



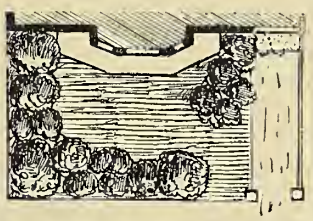


Fig. 1.—ARRANGEMENT OF TWO SHRUBS. Fig. 2.—SHRUBS IN MASSES.

in from the edge of grass plats, on four sides, with some openings to the center, as shown in figure 3. These borders are usually from three to six feet wide, with the plants arranged in the mixed irregular style and quite uncrowded, with usually an edging of some bright low plants. It is a charming style, and the effect is largely due to preserving an ample central plat of grass. A pleasing feature

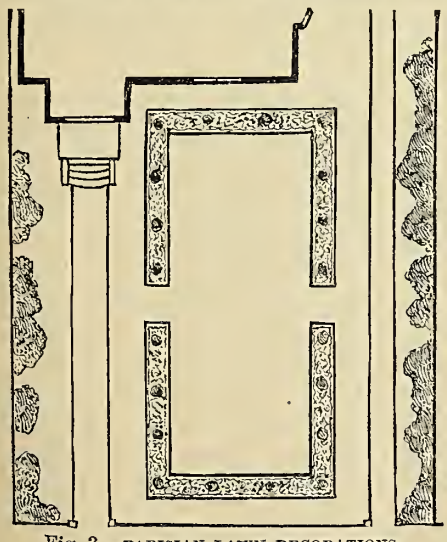


Fig. 3.—PARISIAN LAWN DECORATIONS.

is the introduction of some handsome shrubs along the center of the borders, at equal distances apart. Altogether the arrangement is very satisfactory to the eye, and worthy of adoption in our gardens when they are of sufficient area to admit of it.

The following excellent suggestions apply only to places of considerable area. Where a beautiful garden fronts on a public highway, it is as commendable in the owner to allow passers on the street to get glimpses of the interior, as it is to have thought of the effect of a fine house upon a neighborhood. But then a garden is designed chiefly for the pleasure of the owner's family and

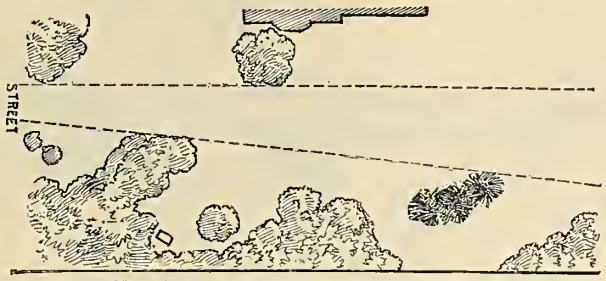


Fig. 4.—LONG VIEW THROUGH GROUNDS.

friends, and he likes to enjoy it in seclusion. It is a luxury to sit at ease or swing in a hammock on a summer's day, and drink in the sights, sounds and perfumes peculiar to a garden, without fear of interruption, and this seclusion should be provided for. Figure 4 shows how masses may be set so as to give the public some benefit of a garden, and yet render portions of it secluded. It will be seen that an extensive view of the grounds may be had from the street, while by proper arrangement of trees and clumps the house is little if at all exposed.

The Law of the Road.

The "Law of the Road" regulates the conduct of persons travelling on the highway. Farmers make so much use of the highways leading to and from their farms, that this subject is to them one of much importance. A highway is any road which every citizen has a right to use. The law applies to every highway which the public uses, whether it is a legal road or not. If the public uses the road even wrongfully, this law applies to all persons, while there.

TURN TO THE RIGHT.—The most important law of the road is, that when two persons in vehicles coming from opposite directions are about to meet, each shall reasonably bear to the right of the middle or travelled portion of the road, so that they can pass each other without interference. A traveller is not required to keep on the right side of the road all the time; he can drive where he pleases or where the going is best, so long as he turns to the right when he meets another vehicle. If the middle and usually travelled portion of the road is very muddy, and for this or any other reason persons are travelling along the side of the road, then the one who is on the left side of the road is in duty bound to turn out. In Massachusetts it was held that when the part of the road which is wrought for travelling is hidden by snow, and a path is beaten and travelled on the side of the wrought path, persons meeting on such side path are each required to drive their vehicles to the right of the middle of it. It should, however, be remembered that this law of the road is not an absolute and inflexible one. Circumstances may arise which would justify a deviation from it, and when they do arise, a traveller cannot stick blindly to the law, and then claim damages if he is injured. In the crowded streets of a metropolis drivers are required to exercise very great care, and when this high degree of care dictates a departure from this law of the road, then it is not only justifiable, but a failure to observe it might cut off one's right to recover damages if he is injured. This turning to the right is just the opposite of that in England, which requires all drivers to turn to the left. The rule of turning in England is based on long-honored custom; our rule is established by statute in the several States of the Union.

AS TO PASSING.—When travellers are driving in the same direction on the highway, and one wishes to pass ahead of the other, the rule in England requires the foremost traveller to bear to the left and allow the other to pass on the off side. In this country there is no rule on this point. The foremost traveller is not obliged to turn out at all, but may continue to travel the middle or either side of the road at his pleasure, if there is room for the other to get by on one side or the other. If there is not sufficient room for this, it is a duty to afford it if possible, by yielding up an equal share of the road, on being requested to do so. If one refuses to do this, he is answerable for the damage caused the other by delay; though such refusal would not justify the other in forcing his passage, and so causing a collision, as he has redress by due course of law. Neither of the foregoing rules of the road apply to horse-cars. The owners of horse-car lines have the right to the unrestricted use of their tracks, though it is not unlawful for others to drive on the tracks if they do not unnecessarily obstruct them.

CROSSING ROADS.—Where roads cross each other, the rule is that travellers on each road must use due care and prudence to avoid accident and delay. They must act as reasonable and right-minded men would under the circumstances. Some early cases hold that travellers approaching from the side street must see to it that they do not interfere with the rights of travellers on the main road. As there may be dispute as to which is the main road, the rule above stated that the travellers in each road must take care to avoid injury, is the safe one to follow.

HORSEBACK RIDERS.—In England equestrians are subject to the same rules respecting conduct in the road as are persons driving in vehicles; but in this country there is no law of the road respecting them. A man on horseback meeting a horse or vehicle is not with us required to turn to any particular side, as to the right or left, but he "must govern himself in this respect according to his notions of prudence at the time and under the circumstances." There is an honored custom with us, sanctioned by common consent and immemorial usage, giving it the force of positive law, that a person on horseback should yield the travelled path to one who is travelling in a wagon or other vehicle. Common sense and propriety indicate such to be a fair rule. An equestrian or a foot passenger has just the same right of way that the driver of a vehicle has, but the enjoyment of the right is to be regulated by reason, and it is not such that either can compel a teamster, especially with a heavy load, to leave the beaten track of the highway, if there is sufficient room for them to pass on either side.

It has been held that where two travellers in the highway strive to get into the same place at the same time, the one is at fault who first uses force.

FOOT PASSENGERS.—All persons have the same right to walk in the highway that they have to drive there, and they have the same right to walk in the middle of the street that they have to walk on the foot-paths at the side. When one is walking in the wagon track, he must observe greater care to avoid collision with vehicles, but the fact of his being there is not of itself negligence. It is his duty to turn out for teams, especially if heavily laden, but teamsters have no right to run over him simply because he happens to be in the way. They would be liable for the injury if they did. Foot passengers have the undoubted right to cross the street at any time and place, and persons driving along it must use due care not to run into them, and must hold up to let them get by. The foot passenger must also exercise due care to avoid injury, for if he does not, he can recover no damages if injured. If he sees a team coming at a rapid rate he is not justified in attempting to cross ahead of it, or should he attempt crossing a crowded thoroughfare without first looking carefully both ways.

RATE OF SPEED.—The rule that persons using

the highways must exercise due care to avoid accident and injury, includes an observance of the duty to drive at a moderate rate of speed. To drive faster than an ordinary reasonable travelling pace upon the highway, and especially upon the streets of a city, is not only culpable negligence, but is prohibited by statute or municipal ordinance. What is an immoderate rate of speed, in the absence of a statute upon it, is a question for the jury to decide. The Supreme Court of the United States said it was "such rapid driving as under the circumstances amounts to rashness." In Pennsylvania it was held that driving at a rate of fifteen miles an hour, or an hour in four minutes, on a public highway was unlawful, and that if death resulted from a collision caused by such driving, without any fault of the injured party, it would amount to murder in the second degree. HENRY A. HAIGH.

A Seed Bed for Forest Trees.

A. S. FULLER.

For most of the deciduous trees the open field is a good situation for a seed-bed, no shade being required for the young seedlings, except in rare instances. The preparation of the soil should be most thorough, not only should it be plowed deep, but cross-plowed and pulverized with a harrow, until in fine tilth and free from all lumps and stone. If the land is not rich it should be made so, by liberal applications of very old and well decomposed barnyard manure, or some other good fertilizer, but no fresh stable manure or other kind that will make the soil too open and loose, should be used. When all is ready, the seed should be sown in drills far enough apart to admit of cultivation, with plow or cultivator. There are two methods of sowing, the single drill and in double or narrow beds. The first is more convenient for thorough and clean cultivation, but the latter is sometimes preferred, where the space to be devoted to the purpose is limited, or where it is desired to raise a very large number of plants on a given area. Small seeds may be sown with a seed-drill, when convenient, or the single drill may be opened with a plow or marker made for the purpose, or even opened with a hoe drawn along by the side of a line for a guide. The depth of the trench must be varied according to the size and kind of seed to be sown. For maple, ash, locust, and similar kinds one-half inch of soil is sufficient for covering, but the larger nuts should be covered a little deeper. Judgment should be used in all cases, and the depth of covering be varied not only with the size of the seed but with the nature of the soil. If this is light and sandy, or contains so much vegetable matter that it does not become compact, and the surface hard after heavy rains, the seeds may be covered deeper than in one of an opposite character.

On sowing in what are termed double trenches or narrow beds, a trench a foot wide and of proper depth is opened, the soil being thrown upon one or both sides. The seeds are scattered in the bottom of the trench, and the soil drawn back over them.

The wide drills should be three or four feet apart, or at sufficient distance to admit of pruning and cultivation between them, and to give room for workmen to pass when hoeing and weeding the plants. Frequent stirring of the soil between the rows with plow and cultivator during the summer, materially increases the growth of the plants, as well as facilitates the emission of side or lateral roots. At the end of the first season, or certainly not later than the second, the plants should be dug up. This may be done very rapidly with spades, or faster and better with a tree digger represented in figure 1. This very handy implement passes under the plants, cuts off the tap-root if long, and at the same time leaves them standing upright in the row, from whence they can be readily pulled up by men following the digger, or left to be taken up when wanted. Having used one of these implements for many years, I can speak from experience of its value, especially for lifting seedlings that have very long and coarse tap-roots, like the black walnut, hickories, and similar kinds, as shown in figure 2.

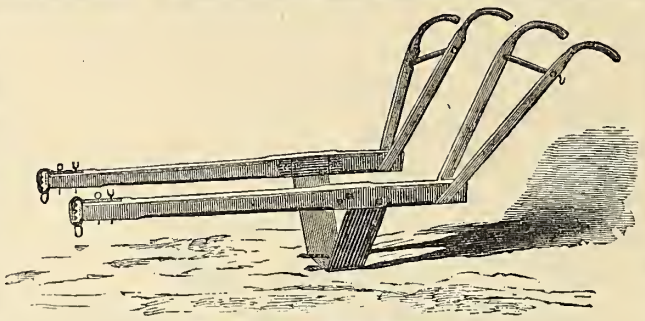


Fig. 1.—THE TREE DIGGER.

After the plants have been lifted, the long tap-root should be shortened if it has not been cut off by the digger. Some of the nut trees, like those mentioned above, will throw down a central or tap-root to the depth of two or three feet the first season, while the stem above may not be more than a foot high. Figure 2 represents an average specimen of a one-year-old seedling black walnut. The tap-root of such a plant should be cut off at *a*, and the larger lateral roots reaching below this point either spread out or shortened at planting.

The main object in shortening the tap-root is to force outside or lateral roots the following season, but it also renders transplanting less troublesome, as it would be very inconvenient to dig trenches or holes three feet deep in which to set seedlings not more than one or two years old. These tap-roots are doubtless of value to trees growing thickly in the natural unbroken soil of a forest, and where there is little room for side or lateral roots to grow, without coming in contact with those of neighboring trees. Where it is necessary for roots to go deep to find moisture, as when growing on high and dry soils, it is seldom that trees growing sparsely or in low moist soils retain their tap-roots many years, if they have them at all. Therefore they can only be considered necessary appendages under certain conditions, none of which often exist in cultivated trees. I am well aware, that there are arboriculturists in this country who will not agree with me in this, for some often claim that the central or tap-root is a very essential part of a tree, and for this reason they advocate planting seeds where the tree is to grow, in order that it may be preserved intact. But with all due deference to the opinion of these gentlemen, my long experience with trees has shown me that tap-roots are but short-lived at best, except in rare instances, and only with trees growing on dry, hard soils, where all the roots go down deeply in order to reach moisture. I have taken up thousands of trees from moist soils and of all ages, from one to twenty or more years old, and I never found one with a tap-root of any considerable size, and generally there was none at all on trees after they had reached the age of a half dozen years or more. I have also seen hundreds of acres of our largest forest trees turned out by the roots by tornadoes, and by stump-pullers in clearing the land for canals and railroads, but not one in a hundred of such trees had anything like a tap-root.

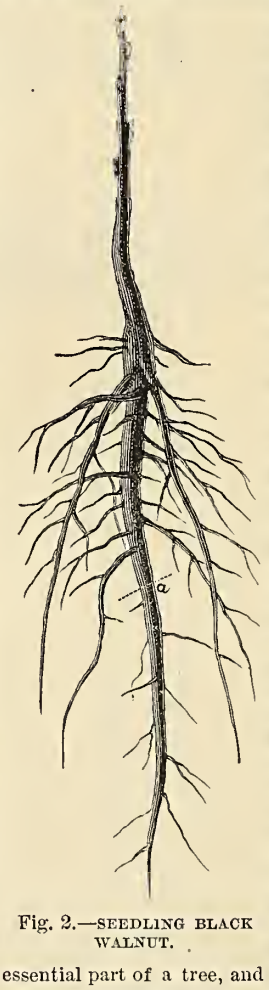


Fig. 2.—SEEDLING BLACK WALNUT.

The Disease in Western Cattle.

There has of late been much excitement among the cattle men of Kansas and elsewhere at the West, as to the nature of the disease that has appeared among the herds. Some have asserted that it was the dreaded foot-and-mouth disease, and that the most stringent quarantine was needed to prevent its spread. Others have denied that there was any cause for alarm, but that the deaths were due to the poor condition of the animals at the end of a hard winter. A recent gathering of Western veterinarians claim to have discovered that the cause of the loss of hoofs and other alarming symptoms is due to ergot. It is well known that the continued use of ergotized rye produces most serious results in man as well as in domestic animals. It is not generally known that the seeds of various grasses, as well as those of cultivated grains, sometimes become ergotized, and when in that condition, are poisonous to cattle. A large share of the wild hay cut on the Western plains is of species related to the cultivated rye, and is often called "Wild Rye." An examination of the hay upon which the diseased animals have been fed, shows it to be infested with ergot to an extraordinary extent. As the manifestations of the disease, the loss of hoofs, etc., are similar to those caused by ergot poisoning, the veterinary gentlemen feel warranted in declaring that there is no dangerous contagious disease, and that the unwholesome fodder is sufficient to account for all the alarming symptoms.

Bogus Butter.

The testimony taken by a Committee of the State Senate, has opened the eyes of the housekeepers of New York City to the character of much of the stuff sold as butter. The methods of making oleomargarine, butterine, and other compounds, known collectively as "Bogus Butter," as described by the workmen employed in the factories, are not such as would tempt one to prefer them to butter. The law as it has heretofore stood, tolerates the making of these substitutes, but requires that they shall be distinctly labelled, and sold for what they are. A most excellent provision, but the testimony before the Committee showed that this law does not enforce itself, is universally disregarded, and that these compounds are openly sold, and at high prices—for, what they are not—butter. Our position with regard to these butter substitutes has from the first been this: It is not a question whether they taste as well as butter, or whether they are as healthful as butter, but that not being butter, a well-known product prepared in a definite manner, no one has a right to substitute them for, and sell them as butter. It is a falsification, and should not only not be tolerated, but both the buyer of butter and the maker of it should be protected against this fraud. If beef and horse-tallow may be sold as butter, then horse and mule-flesh may on the same grounds be sold as beef and veal. Unless methods can be devised by which these butter substitutes can be sold for just what they are, then the law should prohibit their sale altogether. The loss to the dairy interests of New York State is already estimated to be upwards of five millions of dollars annually. What may be the loss in health to those who purchase these stuffs as butter can not be estimated. Absolute honesty and integrity in our food supplies should be insisted upon, and the sale of false milk, false butter, false sugar, flour, etc., be prohibited by severe penalties. Giving a stone instead of bread is condemned by high authority.

A Medium-Sized Barn.

H. H. HARRIS, ME.

The best site for building the barn shown in figures 1 to 6 is on a side hill. The cellar (fig. 4), eight feet high in the clear, is divided into root cellar, boiler and feed room, and manure cellar with pig pens. The brick wall between the root cellar and manure cellar is two bricks thick and three feet high, with a two-inch plank eight inches wide on top. The studding, three by five, is set on top under the cross sill of basement and boarded on both sides. The wall between root cellar and boiler room is one brick thick and two feet high, with studding and boarding the same as the other walls. The door in the west end is made in three parts; the two bottom doors swing as shown by the dotted lines. The upper door is four feet high, with sash, and hung to turn up, having a balance weight and cord. The cellar contains a large manure pit, *a;* a root cellar, *b;* pig pens, *c, c,* and boiler and feed room, *d.* The boiler is shown at *e.* The basement (figure 5) is forty-eight by ninety-six feet, and contains a stable, *a,* for three horses; stalls for forty-three head of cattle, *b,b;* sheep pen, *c;* four loose boxes for cows or calves, *d,d;* wagon room, *e;* feed floors, *f, f;* harness closet, *g,* etc. The passages between rows of cattle stalls are closed by gates, which can be swung back out of the way. The top part of the barn doors are fitted with sash as shown in figure 1. The wagon room has sliding doors with double tracks so the half-doors can run past each other; doors to harness closet are arranged the same. Hight of basement, nine feet in the clear. The main floor (fig. 6), contains drive floor, *a;* hay bay, *b;* shop, *c;* carriage room, *d;* meal room, *e;* pen for absorbents, *f;* (dry earth, muck or sawdust) and tool room, *g.* The carriage room has double doors and tracks. The meal room has bins with hopper bottoms and spouts to basement as shown by dotted lines. The ventilator trunks extend up from the floor, and are made with doors on rear sides at different hights for throwing hay through to the basement. The floors are double, one-inch boards (basement the same), with the exception of drive floor, which is one-inch under floor and two-inch plank on top. The stall floors in basement are two-inch plank on double one-inch floor; scaffold floor double boards. The cross section (figure 3) shows very plainly the manner of framing, form of truss, position of truss rods, bolts, etc.

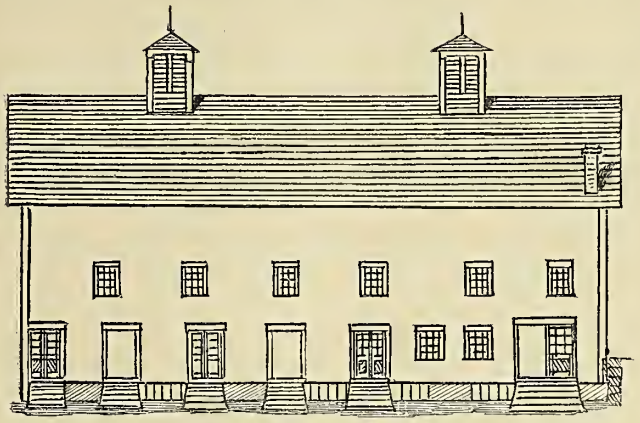


Fig. 1.—SIDE ELEVATION OF BARN.

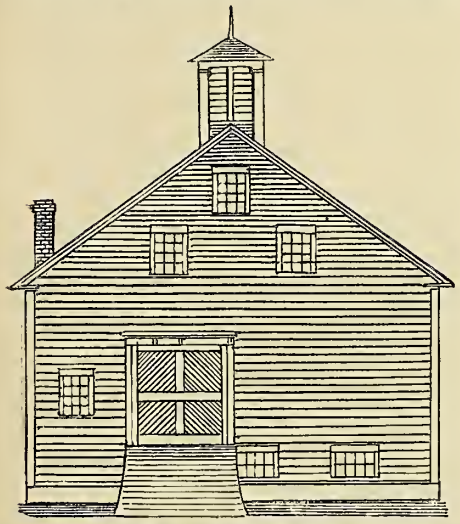


Fig. 2.—END VIEW OF BARN.

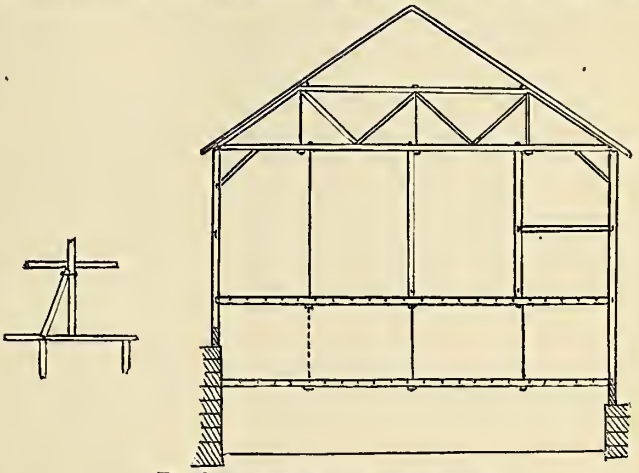


Fig. 3.—CROSS-SECTION OF FRAMING.

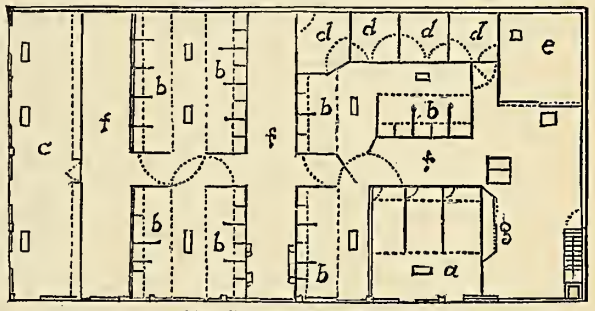


Fig. 5.—THE BASEMENT.

Estimates of Material and Labor for Barn.

11 posts, 8 by 8, 28 ft. long.	138 braces, 3 by 4, 5½ ft. l'g.
13 posts, 8 by 8, 22½ ft. long.	80 rafters, 2 by 6, 32 ft. long.
12 posts, 8 by 8, 18½ ft. long.	28 truss braces, 5 by 6, 10 ft. l'g.
3 sills, 8 by 8, 96 ft. long.	368 floorings, 3 by 8, 12 ft. l'g.
17 cross sills, 8 by 8, 47½ ft. l'g.	4 purlines, 6 by 6, 96 ft. l'g.
9 beams, 8 by 8, 48 ft. long.	2 sills, under basement floor, 6 by 6, 61 ft. long.
7 truss b'ms, 7 by 7, 53 ft. l'g.	Timber for ventilators, 2 by 4, 200 square feet.
450 ft. in length of girts, 6 by 6.	Timber for stalls, partitions, etc., 2,000 square feet.
48 studs, 3 by 4, 27 ft. long.	Total feet.....34,756
44 studs, 3 by 4, 25 ft. long.	
23 gable studs, double length, 3 by 4, 17 ft. long.	

Boards for roof and roofs of ventilators	6,500	
Boards for walls	7,106	
Boards for floors	19,584	
Boards for main or drive floor	2,304	
Boards for stall floors	1,662	
Boards for partitions, stairs, gates, etc	3,088	40,244
		75,000

Total 75,000 feet hemlock lumber @ $10	$750.00
4,000 feet pine lumber finish @ $35	140.00
Labor on wood work	500.00
5,000 clapboards @ $18	90.00
50,000 shingles @ $3	150.00
1,000 lbs. nails, board 10d. and finish, and spikes @ $3.85 per cask	38.50
150 lbs. clapboard 5d. nails, 200 lbs. shingle 3d. nails @ $5 per cask	17.50
Windows and frames	96.00
Painting, two coats lead and oil	150.00
1,280 feet ⅞ rod iron for truss rods, 2,600 lbs @ 3c. per lb. $78; 200 lbs. half-round iron for door-tracks @ 3c., $6; 168 nut blanks, 134 cast washers @ 5c., $15.10; cutting threads, topping nuts, etc., $10	109.10
Rollers for doors, 1 pair 10 inch, 90c.; 16 pair 6 inch, 40c. each	7.30
2,500 brick @ $7; laying, $3.50 per M., lime, sand, etc	26.25
Stone work, excavating, and grading	400.00
Incidentals: hinges, latches, door fastenings, etc	25.35
Total	$2,500.00

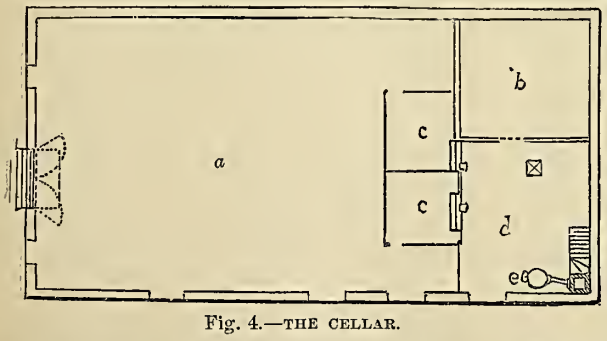


Fig. 4.—THE CELLAR.

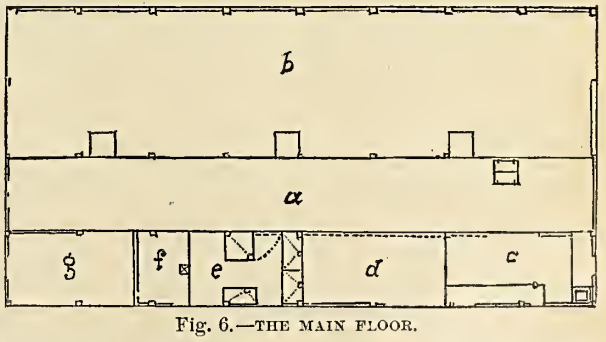


Fig. 6.—THE MAIN FLOOR.

The above medium-sized barn is well suited to the needs of the average farm upon which all kinds of live stock are kept. The cost of construction will vary somewhat in different localities.

The Best Prices for the Best Fruit.

One who visits the markets will observe that a slight difference in quality of fruits is accompanied by a large difference in price. Take peaches, for example; dealers know that however the market may be "glutted" with common fruit, there is rarely an excess of that which is "twigged" as extra. The few cultivators who have carefully assorted their fruit know that the operation pays. It would pay still better to have all the peaches of the first quality, and this can be done by thinning the fruit. Within a few years, peach orchards have been largely planted in localities not before regarded as favorable for peach-culture, and the increased competition thus caused, will tend to reduce the price of common fruit. Those will be wise who strive not to send the greatest number of baskets or crates to market, but to send the best fruit. The time to prepare for this is soon after the blossoms have fallen and the "set" is seen. All who have practised thinning peaches, are sure that it is profitable. While the fruit is less in numbers, there are as many baskets. If two-thirds of the fruit is removed at the first thinning, the remaining third will usually be an excessive crop, and require a final thinning as the time of ripening approaches. We speak especially of peaches, as the results of thinning are more strikingly seen with these, and they have a great tendency to overbearing, but it will also be found profitable with choice pears, especially those which tend to form clusters. The culture of choice early apples is strangely overlooked; they are the most profitable of all apples within easy reach of a market, and judicious thinning is amply repaid.

How to Make and Set Lightning Rods.

The extra charge of electricity in the passing cloud wants to get to the earth, and it will effect a passage if it is possible. The air resists it. If there is just enough of even a poor conductor to enable it to overcome the air's resistance, down it will go. 1st. If the partial conductor can not carry it all, it will rend a way, splitting trees, demolishing house-timbers, numbing or destroying living bodies.—2d. It will choose the path that offers the least resistance. It will follow a long way round through copper or iron, rather than take a short cut through any poorer conductor.—3d. If a sharp point is at the top of a roadway, it will come down in a small stream; but if a large ball or blunt end is presented, it will come down in a mass.—4th. It will seek the shortest possible route through the resisting air.—5th. If a rod of iron stands on one end of a roof, and an electric cloud chances to pass near the other end, and there is some moisture or metal in the building, there may be on the whole a better roadway from the cloud to the earth, than to go through the long air space to reach the rod, and that part of the barn may get the charge.—6th. If in passing through a building, the electricity has to cross an air space, near hay or straw, it may develop heat in the air and it will he quite likely to start a fire.

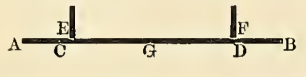
How to Set Lightning Rods.—There is a great deal of nonsense and humbuggery about Lightning Rods. All that is needed is to furnish the electricity with a better channel than it can find in a barn or house, or other building. Run a round or square iron rod, three-quarters to one inch through, or a copper one, five-eighths inch in diameter, down in the earth where it is always moist and up on the ontside of the building, to a few feet above its highest point, and the electricity will ALWAYS follow that rod. If the top of the rod terminates in one or two, or better three sharp points, kept bright by silvering or nickeling (not absolutely necessary), the electricity will come down so quickly, that it will never he perceived. A galvanized iron rod (that is one coated with tin or zinc) will last longer, because it will not rust.

Note 1.—The conducting power of a lightning rod seems to depend largely upon its surface; hence, a gas pipe does nearly as well as a solid iron rod.

Note 2.—The twisting of rods, the many ingenious forms so much set forth, and plating, are useless expense. Give the electricity a good sized metal rod with no breaks, and it will not care for twists and grooves and augles.

Note 3.—Glass insulators, angles, braces, etc., etc., are an useless expense. If a rod is held upright by wooden supports, the lightning will never leave the metal to go off through wood of any kind.

Note 4.—Let the top end of the rod be above the highest point of the roof, chimney, or cupola. If the roof is large and long, run the rod up to the ridge and along it, with a branch running up in two or more places. It is well to have the upright rods and points so high, and frequent, that there will be no points of the roof more than twice the hight of the rod from its foot, thus:



Let A and B be the ridge of a roof, with an iron rod running along it and down to the moist earth; E and F two upright rods, with one or more sharp points at the top, and welded fast to the running rods A—B. If the distance A to C, or C to G, or G to D, or D to B, be not more than double the hight of the rods E and F, they will afford ample protection to the roof.

Make Your Own Lightning Rods.—Buy enough inch iron rod, round or square (it is cheap now). Have one end planted in the earth some ways into soil always moist, with any larger old iron of any kind in contact with it. An old iron mould-board will do; or let its foot stand in a well that is never dry. The rod may connect with an ever-flowing tile or stone drain. Run the rod up the outside of the building, wherever most convenient, either at the gable end, or by the side over the eaves, and along the roof to the ridge and along it. Support the rod where needed with wooden blocks or braces, or brackets, nailed against the side of the house. Have no break in the rod anywhere; if in pieces, let the blacksmith make a good weld, not letting the welded part he smaller than the rest. Get your blacksmith to weld on some half or three-quarter inch rods as needed, according to Note 4 above. Let him split the top end into three parts, flaring them ont three ways, or weld on three small pieces four or five inches long, sharpening the point. The tips you can have covered with a little gold or silver leaf, or if convenient, have them nickel-plated. If not easy to do this, apply a little paint, and wrap the points in gold or silver leaf, or in tin foil.—All the above will cost but little, and will he just as effective as the five or ten times more expensive lightning rod man's "jiggle-ma-gees."

N. B.—Many dealers supply ready prepared three-pronged plated points at small cost, ready for you to screw them on to the top of the upright terminal rods. Lightning rods induce a feeling of safety.

Animal Ailments.

DR. D. D. SLADE.

Crib-Biting.—"Is there any way of preventing a young colt from crib-biting?"—Turn him out into a yard or enclosure where he can get exercise and a chance to pick up earth. If obliged to house him, put him into a loose box where there is no woodwork which he can seize with his teeth. Give him exercise in some way.

Impaction of the Manifolds.—"Is there any remedy where the manifolds become packed so hard that it will require some effort to move them, which condition was shown on examination?"—If the diagnosis of this condition can be made from the symptoms, and such is generally the case, a full cathartic should be given without delay, consisting of a pound of Epsom salts to the ox or cow, to which may be added two ounces each of gentian and ginger, and twenty drops of croton oil. Stimulants must also be given, of which carbonate of ammonia in four-drachm doses every four hours is perhaps the most suitable. The action of the purgative may be hastened by injecting warm water into the rectum. The animal should be encouraged to drink all the fluid possible. If in twelve hours there is no action of the purgative, it may be repeated.

Retained After-birth.—"Can anything be done for cows that do not clean?"—There is too often anxiety on this point, when, with a little patience, nature will complete what she has begun. If there is delay beyond forty-eight hours, the placenta, or after-birth, with the membranes, should be removed by mechanical means. The hand, well covered with oil or fresh lard, should be carefully passed into the vagina, and, following the cord, which is kept tense with the other hand, the placenta is grasped, and if retained by centers of attachment, these are to be gently peeled off or squeezed by the fingers, and the whole mass removed. All should be accomplished with the utmost gentleness and care. A dose of Epsom salts may sometimes be useful in hastening matters, if the above method is not practicable.

Clipping Horses.—There is no subject upon which there is a greater variety of opinion than this. It would be impossible to give an opinion suitable to every case, but the following will apply generally. Nothing can compare in beauty to the natural coat, when in its best condition. Where speed is required and the coat is very long, clipping may be done, provided care is taken afterwards to prevent chills, The operation should be done in early winter. The animal should never be allowed to stand exposed for any length of time to cold winds—pneumonia and congestion are the frequent consequence. At best, it is an unnatural proceeding, and is too often a substitute for elbow grease, and is always attended with risks. Sheep are often killed by cold storms after shearing.

Scabby Skin Disease.—Manifested by sores in the mane and top of shoulder Give more laxative food, roots, and bran mashes, and moderate exercise daily. Keep the skin clean by thorough grooming, brushing and rubbing. Use upon the sores daily a small amount of iodide of sulphur ointment.

Black Leg in Cattle.—Black leg is a constitutional malignant affection, scientifically known as Anthrax, or Charbon, and communicated by a virus or poison. The exact conditions under which the disease arises are at present unknown, but scientific research has established the fact that it is due to germs which are developed under certain atmospheric conditions upon lands which are rich and undrained. There is no cure adapted to all cases. The diseased animals must be at once separated from the healthy, and kept under strict guard. All carcases and everything which has come in contact with the disease, must he burned or buried very deeply. All infected buildings must be thoroughly disinfected, and pastures abandoned. Stamp out the disease if possible.

Itching Cattle.—In all probability the irritation is due to the presence of parasites, if not to lice, to an insect which burrows beneath the skin, and thus escapes superficial observation. If due to the first cause, bathe the parts thoroughly every day, with a saturated solution of kerosene and water. If to the second, use sulphur ointment rubbed into the parts, especially where there are pimples or excoriations. Keep the animals clean by the thorough use of a card and brush that are kept for them alone, and for no others. Keep the premises clean.

Diarrhœa in Calves.—This is due to imperfect digestion. Change the food and give half the quantity of liquid. Scald the milk, adding sufficient flour to thicken it. If this does not relieve, add a little prepared chalk to the food. Keep the animal clean and dry in a warm, sunny pen. Feed with regularity three times a day.

Coal-Ashes to Swine.—Coal-ashes are not injurious, although wood-ashes are preferable, and swine should have access to them. Black teeth will not kill the animals, if proper treatment is adopted. Let them have access to earth, charcoal and wood-ashes. Keep the skin clean, and allow plenty of pure air and water, and when possible, green food. If necessary, give half an ounce of sulphur with the food, according to circumstances.

Parasites in Nasal Passages.—These are the larvæ of a fly which creep up into the nose of sheep. Boil one pound of tobacco in a gallon of water, turn the sheep on to its back, and holding the head firmly, inject with considerable force by means of a good syringe, a table-spoonful of the liquid, directing the syringe upwards, into the nostrils. Repeat the operation from time to time, as long as there are symptoms of the presence of parasites.

Feeding of Horses.—The fattening qualities of corn as compared with oats, is shown by the greater amount of oil it contains, being nearly double that of oats. Therefore, if used as food for working horses, it should be given in these proportions. Equal quantities of corn and oats should not be ground together. Such a mixture is dangerous. Oats should be given whole, unless necessary to bruise them for a special reason. Corn ground with the cob adds to its bulk, and does away with some objections to its use. Hay fed with the grain, helps the digestion of the latter. We should prefer not to moisten the grain—particularly if the animal is a greedy feeder. Bran mashes should be given at least once a week in place of grain, or better still, carrots twice a week.

Garget.—Ropy Milk.—Several correspondents desire information in regard to garget in its different stages. This disease is an inflammation of the milk glands, most commonly coming on just previous to or at the time of calving, but may appear with greater or less severity at any time when the flow of milk is abundant. The symptoms are, enlargement of the udder, which becomes hard, congested and painful; one or both sides may be attacked, and, on pressure, hard cakes may be felt in the udder, the teats sympathetically becoming tense, painful, and often nearly or entirely impervious. The milk, when drawn, is ropy, and if the inflammation goes on, may become bloody and mixed with matter. Of course, the object of any treatment is, first to allay the inflammation. For this purpose, bathe or foment the udder and teats in warm water, or with warm soap suds. If the organ is very much swollen, support it by means of a bag or bandage passed over the hind-quarters, cutting holes for the teats. In this bag may be placed a linseed-and-meal poultice, if the inflammation continues great. If necessary, draw off the milk by a milk-tube, which should be done three times a day. Give a purge of half a pound of salts, lessen the amount of food, which should be very simple, without grain, and offer very little fluid. If the glands remain hard after inflammation has subsided, rub with iodine ointment. The too early and sudden removal of the calf often brings on this condition. The restoration of the calf may sometimes greatly accelerate the cure. If we interfere with nature's laws, we must sooner or later suffer the consequences.

Commencement of the American Veterinary College.—This institution is gaining by degrees the position it has a claim to by the good work it is doing—and the progress and recognitions that our people are beginning to grant to Veterinary Medicine. But a few years ago Veterinary Colleges were unknown in the United States, and now that several have been open, have died and been resuscitated, the American Veterinary College, with her Graduating Class of '84, her alumni of one hundred and twenty-three graduates, stands ahead of all institutions of its kind in this country. The winter session has just closed, and the following gentlemen have received their degree: Francis Sherwin Allen, B. S., of Mass.; Armin Ernest Brum, D. V. S., of N. Y.; Arthur Decalb Galbraith, of Indiana; Elwood G. Gilbert, of Pa.; Wm. Henry Grihble, D. V. S., John Hamlin, D. V. S., Arthur Hudson Helme, Walter George Hollingworth, Isaac Newton Krowl, of N. Y.; Morton Edward Knowles, of Indiana; Eldon Leon Loblein, of West Indies; Martin John Otto, of Mass.; Matthew Alexander Pierce, of N. J.; Edward Canfield Ross, of Conn.; John Elmer Ryder, of N. Y.; Orrin William Snyder, of Ill.; Thomas William Spranklin, of Md.; Richard Augustus Stoute, D. V. S., of West Indies; Nicholas Pierce Valerius, of Wis.; Andrew Goodyear Vogt, of N. J.; Hamilton Vreeland, of N. J.; Thomas Elder White, of Mo.

Chat with Readers.

Sweet Potatoes in Massachusetts.—*T. Volk*, Fall River, Mass. The variety generally cultivated at the North is the Nansemond. All the New York seedsmen keep the sets at the proper season for planting, which is in May and June.

Water Cress.—*G. Hall*, Berkley, Mass., thinks he has just the place for water cresses, and asks if he can find a ready market should he grow them. In large cities there is a ready sale. As the crop can only be grown in localities that are watered, the supply can not be increased indefinitely. The New York market is never over-stocked, and they generally bring paying prices.

Pop Corn.—*S. Rowe*, Washington, Kans. We have no statistics as to the yield of pop corn per acre. There are several varieties and they differ greatly in the size of the ears. The varieties most used are the Shaker and the Rice, the former is a favorite with those who pop it for sale. The Dwarf Golden is a curiosity on account of its small size, and it pops well, but is too small to be profitable.

Pruning an Arbor Vitæ Hedge.—*L. N. Cook*, Salem, N. C. The hedge may be pruned for two purposes; one, to promote a stronger growth, and the other to diminish the vigor of the trees. For the first purpose, prune in autumn, after the summer's wood has ripened, usually in October. To weaken the growth, and keep the tree within bounds as a hedge, prune before the new wood is ripe, in June.

Vine to Cover a Building.—*G. Smith*, Norfolk, Conn., wishes to cover a building, and asks if there is any evergreens that will endure the winters in his rather bleak locality If not, what grape-vine would be best. There is no evergreen vine that can be depended on for such a place. If the grape vine is to be used without refereuce to its fruit, the Clinton is one of the most suitable. Indeed the fruit of this, if allowed to mature thoroughly, is very acceptable. The Concord would be hardy enough, but its leaves are not so pleasing as those of the Clinton.

Why Blanch Celery?—*A. M. Smith*, Manistee, Mich., asks us: "Why is it necessary to blanch celery, why not eat the stalks green?"—If our correspondent will make one trial—even a single bite—of a green stalk, and one that has been properly blanched, the question will be answered. The absence of the green color is of no consequence in itself, but it indicates that the light has been excluded, that the stalks have become crisp and brittle, with few strong fibres, and especially that they have lost their strong bitterish taste, which is so disagreeable that no one would eat celery if it remained, leaving just a trace that gives a pleasant flavor. liked by most persons.

Hog Cholera.—*J. W. P. King*, Shannock Mills, R. I. —It is so improbable that the disease known as "Hog Cholera" in the Western States, can have appeared among your swine, that you should first consult a veterinary surgeon, and ascertain what is really the trouble, before you seek a remedy. The best authorities regard the so-called Western hog cholera as due to a low condition of the system, resulting from impure water, exposure, and poor food. The conditions of swine-keeping in New England are rarely such as will produce this low condition among the animals, and the safest course will be to ascertain what the trouble really is, before attempting to treat it.

How he Managed his Potatoes.—*Mr. G. Q. Cook*, Red Lake Falls, Polk Co., Minn., adds his experience to the methods we have already given for forwarding early potatoes. As this may still be useful in some far-Northern localities, we give it. The seed potatoes were selected as nearly of a size as possible, set on end in boxes or crates, in a warm and sunny place. When good healthy shoots, from half an inch to an inch long had grown, the potatoes were so cut as to leave a piece to each shoot. These pieces were dropped every nine inches in rows three feet apart and kept well cultivated. The varieties, Early Rose and Peerless, yielded three hundred and four bushels to the acre—good farming or gardening—which ever it may be called.

Rescue Grass.—*G. M. D. Patterson*, Robertson Co., Texas. The grass about which you inquire was introduced about twenty years ago in France, with a great flourish under the name of "Schrader's Bromus" (*Brome de Schrade*). It was predicted that it would completely revolutionize agriculture and it received considerable attention for a time. Of late years we have heard nothing of it. The French catalogues of the present time state that though it has been over praised it may be useful "in certain countries and in various circumstances." None of the species of Bromus are of agricultural value. You would probably find the "Johnson grass" (*Sorghum Halepense*), a perennial, much more useful in your locality.

Girdled Fruit Trees.—*Mr. N. Prefontain*, Beloit, P. Q.—We gave the best methods for saving girdled fruit trees in the *American Agriculturist* for December last (1883). Where the girdling is not complete, the tree may live after the wound is covered with waxed cloth. A mixture of clay and cow manure may be applied to prevent evaporation. If the inner bark is gnawed off all the way round the wound must be bridged, which may be done with three or more cions cut from the same tree, or one of the same kind. The ends of the cions are cut slanting and placed under the bark above and below the wound. These are "double" cions, as both ends unite with the stock and furnish a passage for sap from the roots to the leaves. If the wound is near the base, it may be covered with a mound of earth, otherwise apply one of the coverings given above.

Carp and Ducks.—*John H. Doughty*, Woodbury, Queens Co., N. Y.—Has heard that German carp would destroy young ducklings and goslings by pulling them down beneath the surface of the water and drowning them. As one of the prominent claims in favor of carp-culture is, that this fish is an exclusively vegetable feeder, it is hardly possible that it should destroy young water-fowls "just for the fun of it." As mud turtles have been detected destroying young ducks, etc., and it is alleged that bull-frogs will prey upon them, it is most probable that the disappearance of aquatic fowls is due rather to one or the other of these amphibians than to the quiet, well-behaved vegetarian carp, which is represented as having no faults.

The Legal Weight of a Bushel of Parsnips.—*M. Ettisberger*, Burlington, Iowa.—The weight of a bushel of the different kinds of farm produce is fixed by the Legislatures of the various States and Territories. There is no general law, and as a consequence, there is little uniformity in the weights. While some States fix the weight for nearly everything sold by the bushel, others give them for only a few leading articles. Parsnips, for example, have received attention in only four States, and in Canada. While forty-five pounds of parsnips pass for a bushel in Connecticut, the farmer in New Hampshire and Ohio must give sixty pounds, while Rhode Island lets him off with fifty pounds, Canada has sixty pounds. Beyond these few States, none of the others, up to a few years ago, legislated on the parsnip.

Parasites on Animals.—*C. Todd*, Plymouth, Iowa, writes that he has successfully destroyed lice upon various animals by the use of the seeds of the Perennial Larkspur (*Delphinium formosum*); the seeds are steeped in water and the infusion applied with a brush. He says that he finds this more effective than any other remedy he has tried for lice upon farm animals, and those of the *genus homo*. He suggests that farmers should procure seeds from the seedsmen, sow a small patch and raise the seed for use. While the infusion of the seeds is harmless applied externally, it should be known that it is violently poisonous when swallowed, and care taken to avoid accidents. Stavesacre seeds is a very old remedy for animal parasites. They are the seeds of another Larkspur (*D. Staphisagrum*), and are still sold by some druggists.

Shells for Poultry.—Ground oyster shells is one of the best forms in which lime may be supplied to poultry. A. H. Davis, Mitchell, Ind., finding that oyster shells would be very expensive, asks if the shells of the fresh-water mussels, or clams, as they are sometimes called, may not be used as a substitute. These mussels are very abundant in the western streams, and may be had for the expense of carting. Shells of all mollusks are essentially alike in composition, consisting of carbonate of lime, mixed with a small amount of animal matter. Some of the fresh-water shells contain very little lime and are very fragile; others are nearly as hard and firm as an oyster shell. Have any poultry-keepers tried pounding up the whole, the contained animal as well as the shell? Let us have experience with fresh-water mussels or clams as chicken feed.

About Peanuts.—The *Rev. John Otten*, Morrillton, Ark., writes that the soil in his section is well suited to peanut culture, but is in doubt whether the demand is sufficient to warrant raising them on a large scale. In this country peanuts are used for eating, when roasted, and by confectioners for making "peanut candy." In France they are used for pressing to obtain their oil, for which purpose they are imported into Marseilles, from Africa, by the shipload. We have not heard of their being pressed for their oil in this country. Cotton seed yields such an abundance of oil and is so cheap that it will not pay to cultivate a plant especially as a source of oil. The only use for peanuts, that we have heard of, aside from those mentioned above, is for the adulteration of chocolate, for which they are said to be well adapted. The demand for eating is so large that the crop is regarded as a profitable one on land suited to it.

About Staking Trees.—*J. J. Corrigan*, Factoryville, Pa., asks us if in transplanting fruit or ornamental trees, it is best to set two stakes two by five inches, six inches apart, and then to nail strips connecting these stakes, in such a manner as to exclude all sunlight from the trunks, in order to protect the tree from cattle and sheep. Our correspondent finds nothing on this point in Barry's and other works, and comes to us for advice. Barry and other writers upon fruit culture, suppose that a community settled long enough to have fruit and other trees will provide for shutting up their animals, rather than make every owner of a tree fence it in from injury by cattle and sheep. A few local laws, well enforced, or a few prosecutions of those who allow their animals to run at large and injure the property of others, are what are needed. Trees often require stakes to protect them from injury by winds, never against cattle and sheep.

Asphalt or Pitch Walks.—*A. C. Tillotson*, Northport, N. Y. A number of the compositions for making garden walks are covered by patents. A simple mixture of coal tar and sand will finally become hard, but it requires a long time. The best home-made walk we have seen was made as follows: The bed of the path was excavated to the depth of three inches and provided with edgings of bricks, laid on end or with board edgings. Coal (or gas) tar, three parts, and common pitch, one part, were melted together and boiled for half an hour. This composition was mixed on a board platform with dry sand, just as mortar is mixed, and of a similar consistency and the mixture spread upon the path. Boards were laid upon the surface and pounded, to level it. Dry sand was then sprinkled over the surface, which was then rolled. The walk in a few days became as hard as one of stone. It is troublesome to make such a walk.

Sawdust as Bedding and Manure.—*Geo. G. Megrail*, Winona, Ohio, asks if sawdust that has been used as bedding in stables, and mixed with the manure in the heap, can produce, when applied to the land, any deleterious effects. Shaping his question in another form, he asks: "Does either chemistry or experience show that it is not well to make use of sawdust in our stables?" There is nothing, so far as we are aware, in the teachings of chemistry, or in the practice of our best farmers, to show why sawdust should not be used in stables, or why the material, which readily ferments, should not be employed as a fertilizer. Sawdust fresh from the mill, has been sometimes used as a mulch in nurseries and fruit gardens, and has been charged that in this condition, it bred an injurious fungus. This charge is not well substantiated, and such sawdust is very unlike that which has been soaked in liquid manure.

How Can Oleomargarine and Butterine, etc., be Detected?—*John Reese*, Covington, Ky.—While the detection of these substitutes for butter is not difficult to the skilled chemist, unfortunately no method has yet been devised by which the consumer can readily know whether or not he is defrauded. Those who purchase butter for retailing, know what they are buying. Until we have laws to properly protect the consumer, his only safe course is to purchase of men who would no more sell him vile grease for butter, than they would adulterated bread to eat it upon. Moralists will do well to consider what will be the effect upon a community where the people begin the day with a breakfast at which they butter their bread with vile fats, have "bob-veal" for their cutlets, and drink an infusion of peas, parched ship-bread, or rye, thinking it is coffee. To bring up a horse or a cow to future usefulness, we must give the best and most honest food. What sort of men and women will result from a daily food of bogus stuff?

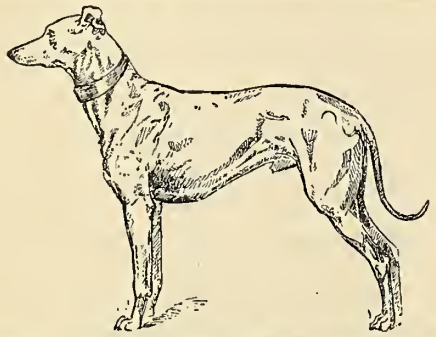
An Evergreen Blackberry.—*Ira B. Sturges*, Portland, Oregon, asks for information about what is known upon the North-west coast as the "Evergreen Blackberry." There are but a few vines in cultivation near Portland, but he thinks they will be valuable to grow for canning. They begin to ripen after all other varieties are out of the market, very prolific, and when frost comes, they are loaded with green and ripe fruit and blossoms. Mr. S. can learn nothing about them from the books and catalogues, and comes to us for help. From the lateness of bearing and from the remark that the vines require the support of a trellis, we have little doubt that this will prove to be a form of the common blackberry of Northern Europe, *Rubus fruticosus*. This, in England, is almost evergreen, and is so variable that over twenty wild varieties are recognized by English botanists. One of the varieties has long been cultivated in this country as the "Cut-leaved" and "Parsley-leaved" Blackberry. Its fruit is large and abundant, but one who has had the Kittatinny as his standard of quality, will hardly class this as among the best. Still it may improve in the genial climate of Oregon. We suspect that this is the direction in which Mr. Sturges must look for the origin of his Evergreen variety.

A Trouble with a Cherry Tree.—*W. C. Gamerod*, who lives just outside of the City of New York, has a single cherry tree with a wide spread head, and annually bears an abundance of fruit. The cherries are white on one side, and red on the other, but he has never known a single cherry reach maturity, or even approach it, without being unfitted for use by a worm. Mr. G. has tried wood-ashes, sulphur, and lime upon the root, and has also driven many large nails into the base of the trunk of the tree, all without effect, and asks us what he shall do. Had he applied the ashes, etc., at the flag-staff on the Battery, or driven the nails into the lower part of that pole, they would have been just as effective as to have applied them to the cherry tree. If a worm is found in the fruit, it came from an egg laid on or in the fruit. As soon as the blossoms begin to fall this spring, watch for the insects that may be at work upon the young fruit, catch them if possible, and send specimens of them to us. If no insects are found, send us some of the cherries (in a box so they may not be crushed), and well advanced toward maturity. Is this trouble confined to this particular variety of cherry? How about other trees in the vicinity, are they free? If there are no other trees near by, set out several, as they cost but little, and try to ascertain if it is a general trouble, or confined to a single sort. Manure applied to the tree will be far better than nails.

Castor Oil Beans.—Each spring there are numerous inquiries as to the culture of Castor Oil Beans. *T. D. Smith*, of Knotwell, Phelps Co., Mo., leads the list this season, and we answer those who will follow through him. The uses of castor oil are limited, and it would be very easy to overstock the market. Hence, several years ago, the few pressers who had put up machinery for preparing the oil, took care to keep the business in their own hands. They furnished the seed to farmers, gave instructions for cultivation, and contracted to take the crop at a stated price. So far as we are aware, the same conditions prevail, and outsiders who raise a crop of beans, find no sale for them. There is no difficulty in raising the beans on any good corn land. The ground being well plowed and manured, is laid out in rows six feet apart, and between every sixth and seventh row sufficient space is left for a wagon to pass in collecting the crop. Two or three beans, previously soaked over-night in hot water, are planted every four or five inches in the row, and these in cultivation are thinned to one foot after the plants are six inches high. Good cultivation is given all through the season, and when some of the pods on a cluster crack open, the clusters are cut, taken on a wagon or sled to the "popping yard," where the beans are thrown out by the explosion of the pods. Twenty bushels to the acre is a fair average crop, but some lands yield more.

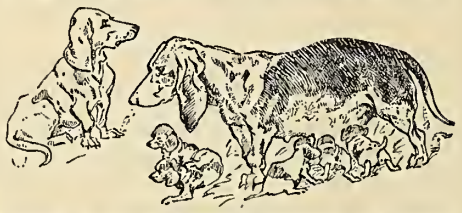
Dogs and Dog-Shows.

We believe in Dog-Shows, because they encourage the purer breeding and development of a class of



animals which God intended should be most serviceable to the human race, especially to farmers. So far from being classed as curs, worthy of general extermination, dogs should be regarded and treated as farm helpers, capable of valuable service as watchers, destroyers of vermin, tenders of flocks, etc., etc. That they are not generally more useful, is the fault of the owners. If steps can be reckoned as money, the dog may be made to save these by all who have to do with cattle and sheep, which in any considerable numbers are very difficult to move and care for without his help. A moderately large-sized dog may be made to do the churning of a dairy of several cows, and serve as a motive power for small machines.

It is now eight years since the dog shows were inaugurated in this country by the exhibition here in New York. The annual displays here have been uniformly successful, and the number of animals competing for prizes during this year's (1884) show evinces no abatement in interest. Our artist reproduces some of the types of dogs seen at the various displays. The tastes and preferences of the surging throng of visitors are plainly indicated by the departments and sections best patronized. most fitting trio in field sports. The departments for the Spaniels, Beagles, Retrievers, etc., have their admirers, while those whose tastes incline them to "ride to hounds," find numerous animals suited to their fancy. Ladies, and others, who mainly regard dogs as pets and companions, gather in the departments assigned to what are called "Toy dogs." Here blanketed and shivering Italian Greyhounds with their pipe-stem legs, stupid

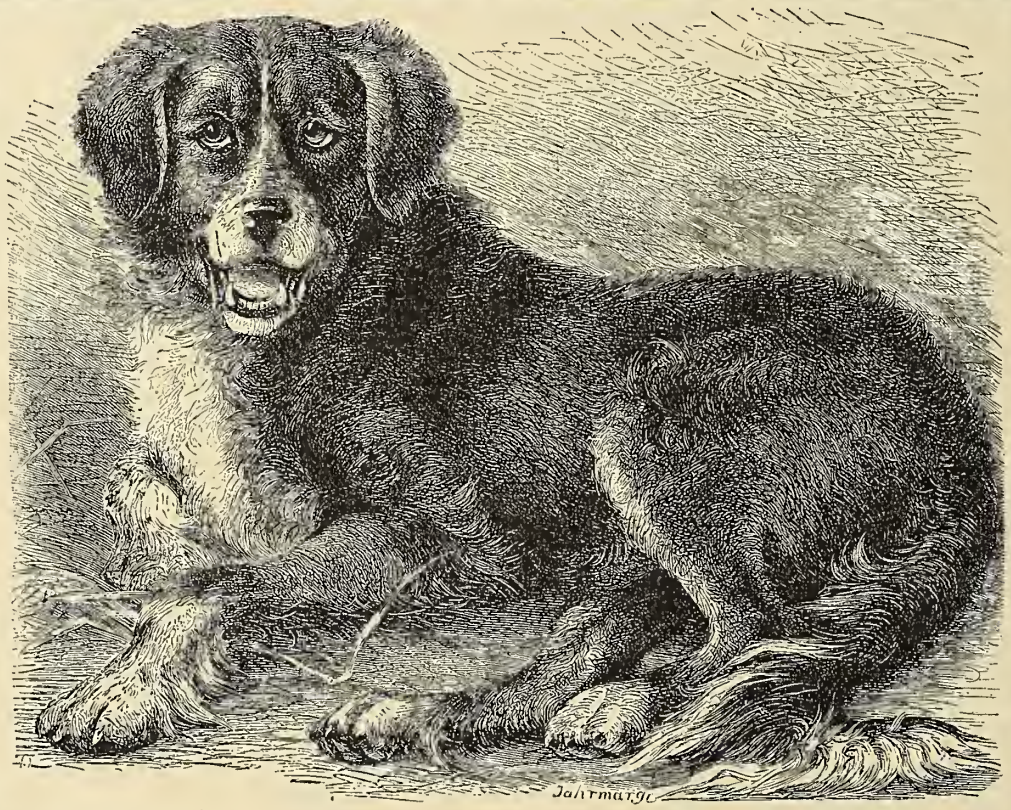


Poodles, Pugs, of beautiful ugliness, and, various Toy Spaniels and Terriers make up the kennels.

The breeds of use on the farm attract no little attention in these shows. As a dog of general utility, excellent enough to watch, and intelligent enough to learn whatever tasks he may be required for, and sufficiently heavy to do mechanical work, the Mastiff has no superior. The closely related St. Bernard, though the true breed is rare and costly, is about his equal, and a most useful dog



for every purpose save for breeding, may be found in a high grade in either of these breeds. As useful farm animals, the various breeds of shepherd dogs take a high rank, and none are superior to the Scotch Colley. Vastly more intelligent than some two-legged animals, he can be very serviceable at whatever work may be required of him, and is withal devoted to his master. Bull dogs and Spitz dogs are treacherous, especially when old, and sometimes needlessly savage to strangers. They have many useful traits, but these are more than offset by their uncertainty of temper. In selecting a farm dog, weight and strength are important points. If these are united to fair intelligence, and a gentle disposition, it makes little difference which breed is chosen. But there are dogs and curs, and pure-bred dogs that have to bear the sins of all these mongrel whelps. A dog may be valuable if not pure-bred; if it be a cross between two pure dogs, it may unite the good points of both. But the mongrels, with which the country is filled, and which cannot be traced to either parent, should have no place upon a farm—or elsewhere. The farm dog, to be helpful, should have duties to perform and possess those qualities which will enable him to do his work well. He should be kind to children and live stock, and above all be strictly obedient to his master. Much depends upon the manner a dog is trained.



Engraved for the American Agriculturist.



Pointers and Setters attract mainly young men, with a number of older persons known as sportsmen, who evidently count upon a day or two of shooting as the first of human pleasures, and "man, dog, and gun" as a



1. GREYHOUND.—2. SETTER.—3. BLOODHOUND.—4. DEERHOUND.—5. POINTER.—6. CLUMBER SPANIEL.—7. BEAGLES.—8. ENGLISH RETRIEVER.

TYPES OF DOGS.

Drawn and Engraved for the American Agriculturist.

Seth Green and Robert B. Roosevelt Go A-fishing.

ROBERT BARNWELL ROOSEVELT.

On the south side of Long Island stretches a long, narrow lagoon of salt water, fed from the land by innumerable trout brooks pouring their sparkling rivulets, scarcely more than a mile apart; it is connected with the sea by several inlets, cut by the waves through the narrow beach of low sand that separates the bay from the ocean. This lagoon, called the Great South Bay, is in reality sixty miles long, although it passes under several local names, but a boat starting from Rockaway can sail sixty miles eastward without going through any but natural water communications.

The bay formerly abounded with fish. Here weak-fish, king-fish, blue-fish, sheeps-head, sea bass and other species lived and bred, while Spanish mackerel, bonito and various migratory kinds visited it in their season, if they did not deposit their eggs there. They are still fairly numerous, although the fishing has been much reduced by the use of pound nets in and near the inlets, which not only capture fish in immense numbers but of immature size. So Mr. Seth Green, the State Superintendent of Fisheries, and one of the Commissioners, took a yacht and set out on an exploring expedition, determined to investigate the possibilities of the bay. I went along to see that they made no mistakes.

The "Cinderbeds," so called from a peculiar coral formation which grows on them, are the favorite resort of porgies, sea bass and robins or gurnards, while small blue-fish are taken in the channel by what is called "chumming." To the Cinderbeds the good yacht Au Revoir flew as fast as the wind and our impatience would carry her. We bought a hundred clams on the way from one of the working boats, with which the bay is dotted every working day in the year, and as soon as we reached our destination cast anchor and went to fishing.

Up came the fish by ones, by twos, by threes, at every cast, of all kinds, large and small. The yacht's deck was covered with fish. Fish flopped and sparkled in the sun; fish bounded about the cockpit; fish got under your feet; fish hid away in the cabin. Baskets and boxes were filled with fish, and had it not been for an interruption, the Au Revoir would have been loaded down with fish. While these two enthusiastic piscatorial artists were hard at it, with no signs of giving up, a stylish-looking craft sailed by. It had a signal on which was the suggestive figure of a fish, and beneath that the word "Bait," and the Commissioner recognizing it at once as the "chum-boat," shouted out that he wanted a hundred moss-bunkers. Chum is bait, usually moss-bunker, bony-fish or menhaden, three names for the same creature, chopped up fine with a hatchet and thrown overboard from time to time, while the fisherman puts larger and more alluring pieces on his hook. The chum gives out an oil which floats on the water and attracts the blue-fish, while the bait catches them. As the menhaden is oily and nasty to handle it is not a pleasant or a clean style of fishing, but it is the only mode of taking blue-fish which is possible within the bay, where sea-weed usually runs so thickly as to cover a trolling squid faster than it could be got out the length of the line, and often to interfere greatly with the hook while chumming. There is a machine made especially, something on the principal of a patent sausage chopper, to grind up moss-bunkers into minute pieces, but it gets foul if not cleaned carefully, and is not much used except by the owners of boats, that make a business of taking parties out blue-fishing, so that it is called into employment daily.

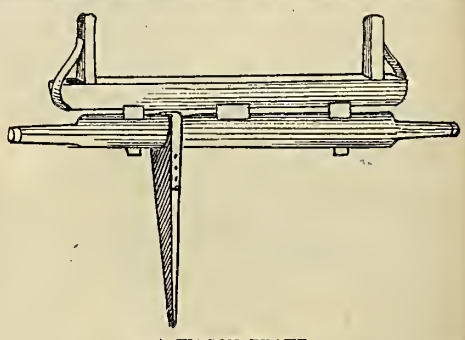
Probably no two more discordantly harmonious elements could be brought together than the Superintendent and the Commissioner. Each has the firm conviction that what he does not know about fishing is not only not worth knowing but does not exist. They are both so calmly convinced of this fact, and securely set in their ways, that they utterly ignore not alone the suggestions of the outside fishing world, but also of one another. Strange as it may seem, they are widely at variance, and even though they may be for the first time essaying a style of fishing that they have never tried before, as was the case with Mr. Green in this instance, they are firmly convinced that they know more about it than one who has followed it for a lifetime. So while the Commissioner was satisfied to put on a gut leader that the professionals would have assured him the blue-fish would take off at the first bite, the Superintendent rigged a wonderful gang of small hooks, such as was never seen by the unsophisticated inhabitants of the Great South Bay in their lives before. The chumming having gone on by the boatmen for a short time, the fishing began. Science was too much for the finny tribe and they simply gave up, resistance under the circumstances was a work of supererogation. The odds against them were too overwhelming, and they opened their mouths and swallowed their fate and the hooks together. It was impossible to tell which of the anglers caught the most fish where both were taking them all the time. Bright, shining, gleaming blue-fish came over the stern so fast that they seemed like a long streak of silvery sunlight rather than mere fish. If there were fish galore before, they were more galore now, they were indeed too galore. They were becoming a nuisance, and as there was no evidence that either of the contemplative anglers had the slightest intent of stopping, the only question remaining was how long it would be before the yacht sank under her augumenting load. Fortunately at this point of time dinner was announced, and the alacrity with which they laid down their lines, was only equalled by the enthusiasm with which they had used them, while the amount of dinner they consumed visibly lightened the vessel again. The meal was late, and before it was despatched the tide had turned, and the fish had left, for they rarely bite during more than one tide. So the party devoted themselves to salting down the prey which they had secured, and of which there was more than they could use.

Tall Pea-Vines.—A Substitute for Brush.

While there are very good peas with dwarf vines, all pea-lovers will agree that the perfection of peas is to be found in the Champion of England, and perhaps one or two equally tall growers. While they are so excellent upon the table, they cost a great deal of trouble to produce them, especially in localities where brush is difficult to procure. After trying pea-hurdles and other devices of sticks and strings, we have found no substitute for brush equal to a wire trellis, suggested by one of our correspondents several years ago. This we have since had in use each season, and by proper care in storing it will last for many years to come. The peas are sown in double rows six inches apart. At each end of the double row is placed a stout post, six inches in diameter, which may be round or half-round. This should be placed three feet in the ground, with the soil well rammed around its foot, and be as tall as the variety requires, four to six feet. The wire used is galvanized iron, No. 18, which runs about one hundred and fifty feet to the pound. The trellis is put up by stretching the wire in double strands, separated by the thickness of the end posts. The first or lowest wires are stretched about six inches from the ground, the successive strands at intervals of every eight or ten inches above. Instead of cutting the wire as each two strands are placed, it is well to take a few turns around the post to the place for the next strands, and thus keep the wire all in one piece. The wires, when loaded with vines, will sag, and should be supported every twelve or fifteen feet, by the use of laths or other strips, in which notches are sawed to hold the wires. If the rows are over three hundred feet in length, it will be well to have another post midway, around which a turn is taken with the wire. By stretching the wires as the vines need them, and when the crop is off carefully coiling them and storing the wires with the posts securely under cover for another season, the culture of the tall kinds of peas is greatly simplified.

A Wagon Brake.

The automatic brake illustrated herewith is much quicker made, more simple, just as good—and even better in some respects—than the one described in the February *American Agriculturist*, p. 49. It can be made by any one in fifteen minutes. Take a piece of hard plank an inch and a half or



A WAGON BRAKE.

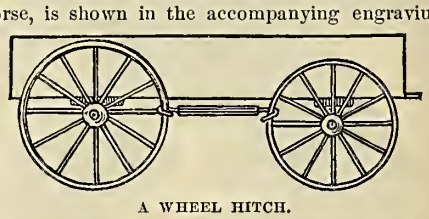
two inches thick, of the required length; notch one end to fit the axle, and sharpen the other end. Pass a stout leather strap around the axle, nailing each end to the edges of the plank. The end on the ground may be spiked if desired, but it answers very well without it. T. C. R.

Thinning in the Garden.

The novice in gardening matters rarely gives his plants, especially his roots, sufficient room. He can not see why he should sow twenty or more seeds for every plant that comes to perfection. If we were to dibble in a single carrot seed every six inches in a row, it is probable that very few of them would appear as plants. A large number of seeds are sown in order that, by their united effort, in germination, they may break through the soil and allow enough plants to see the light to make a stand. After the plants are up, then comes the thinning, and we cut out with the hoe a large number of beets, parsnips, etc., and finally leave one in a place at intervals of six inches to a foot, according to the variety. Onions seem to do well if left in little clusters to crowd one another, and Joseph Harris says that this is the best treatment for the short kinds of carrots. But these are exceptions, and as a rule the more room roots have, the quicker they will grow and the more tender they will be. Take spinach, for example, though not a root, it needs judicious thinning. The first thinning may leave the plants two or three inches apart in the row; a second time, the plants may be left six inches apart, then every other plant may be taken for use, and the final cutting of well developed plants will be the best of all. Salsify, at best a small root, may be had much larger than we usually see it, and more convenient for the cook, by giving it room. As a rule, our garden crops are too much crowded for the best results.

A Wheel Horse-Hitch.

A method of fastening together the hind and forward wheels of a vehicle to restrain an attached horse, is shown in the accompanying engraving.



A WHEEL HITCH.

It consists of a piece of hard-wood with an iron hook in each end. One hook passes around the felloe of the hind wheel, and the other hooks upon the front wheel. Both wheels are thus kept from turning, and this will be an effective check upon a horse inclined to start off when left standing. The device, as shown above, is small and may be kept in the wagon-box close at hand when needed.

The Fennec or Zerda.

From an examination of its portrait, one would find it very difficult to say what were the relationships of the Fennec. When it was first brought to their notice, naturalists found a similar difficulty in assigning it a place, and it was by some classed with the squirrels and by others with the monkeys, before a study of its teeth indicated that its proper place was among the dogs and wolves. The animal is a native of Egypt and other parts of Northern Africa. It is less than a foot long, with a very bushy tail and a snout much like that of a fox. Its most striking feature is its enormous ears, which are about half as long as the body and remarkably wide. The color of the animal is a pale fawn, or sometimes, a creamy white. The base of the tail where it joins the body, and the tip also, are marked with black. The animal is carnivorous, but is fond of fruits also, especially the date, to reach which it climbs up the lofty trees. It makes shallow burrows in the sand, in which it remains during the day, as it is nocturnal in its habits. The skin of the Fennec is regarded as affording the warmest fur of any in its country. The skins are so small that a garment made of them is very expensive. The scientific name of the Fennec is *Megalotis Brucei*. The generic name of this peculiar animal is from the Greek words for large and ear.



THE FENNEC OR ZERDA (*Megalotis Brucei*).

The Destruction by Late Frosts.

Late frost is a constant menace to the cultivator. He has transplanted his tender plants from the hot-beds; his peach trees have their buds just ready to open; his grape-vines are pushing their tender shoots, and in one hour the prospects of a season may be ruined. While late frosts do not bring destruction every year, they come so frequently that it would seem to be worth while to take all possible precautions to prevent injury by them. It does not seem to be generally understood that frost is not something that comes to us from a distance, but is, so to speak, caused by the plant itself. As soon as the plant cools to a certain point frost is deposited from the air surrounding it. Or course this is usually first deposited as moisture, which afterwards freezes. All attempts to avoid injury by frost must be directed towards preventing the plants from cooling. It may encourage those who are disposed to try to shelter their plants, that the protection is required for but a short time and towards morning. The plants begin to cool as soon as deprived of the heat of the sun, and continue to lose heat all night; usually they are not cooled down to the danger point until the end of the night, and in most cases the mischief is done within an hour or two of sunrise. When the night is cloudy frost is not feared. The curtain of clouds prevents the heat passing off into space. In a small garden it is not difficult to protect the tomatoes and other tender plants. Newspapers are always at hand, and are quite effective as blankets. The truck farmer will say that it is impossible to protect his plants by the acre. We are not so sure of that. In some of the French vineyards vines are protected by the acre, but they are planted and the trellises are built with a view to this. If the means are properly considered and the appliances kept in readiness, it would not be impossible to protect melons and tomatoes by the acre. For the orchard and vineyard smoke is the most available protection. It has long been used with success in the vineyards of Germany and should be tested in this country. When a frost is apprehended let materials be provided, and a watch set, whose duty should be to call sufficient help to promptly start the smoke. A ready method of raising a smoke is to throw damp straw upon a fire. Probably experiments will show that tar, petroleum, or some other such material will afford a more efficient method of making a smoke than straw.

Chickens in the Garden.

The broods hatched the last of April, or early in May, can be safely stationed in the garden, as soon as the vegetables are in sight—the hens being confined in coops close by, with conveniences for food and water. Insects are abundant in a well manured soil, and will be devoured by the chicks with great greediness. They also enjoy the tender weeds, between the rows when they first appear. With cracked corn, insects, and young weeds or grass, they have a perfect diet, and grow very rapidly after warm weather sets in. They are thus an important aid in destroying insect enemies that prey upon vegetables, and the strawberry plants. Squashes, melons, and cucumbers suffer most, and when their leaves appear, a good location for the coop is near these. When chickens get large enough to trouble cultivated plants, they must of course be removed from the vegetable garden.

The European Salamander.

According to the superstitions of the ancients, the Salamander was a creature which could pass through fire unharmed. Indeed, it had an actual fondness for it, and was never so happy as when among hot coals and flames. The animal of which these stories were told, is supposed to be the common salamander of Europe, a little reptile that does not appear as if capable of doing anything remarkable. It is unfortunate in having a fire-proof reputation, for great numbers of the poor creatures have been subjected to trial in order to test the truth of the ancient story, and have miserably perished. The common salamander of Europe (*Salamandra maculosa*) is six or eight inches long, and of the form shown in the engraving. Its color is black, with bright yellow markings and spots. It lives upon land, only visiting the water at the breeding season. Like the toads, frogs, etc., its early life is passed in the water, in the tadpole state. Being nocturnal, salamanders are seldom seen; towards winter they secrete themselves in hollow stumps, under stones, etc., and remain in a dormant state until spring. The salamander produces from glands behind its eyes, and upon its body a thickish, milky fluid which is poisonous to small animals. This, which is produced in considerable abundance, is supposed to have given origin to the belief that the animal could extinguish fire, and to another superstition, that the animal had the power of surrounding itself with an icy coldness. In this country there are several salamanders and related genera in the Atlantic States, and many more in the new States of the Far-West.



THE SALAMANDER (*Salamandra maculosa*).

A Lifting Gate.

A gate properly balanced by a weight so that a child even can handle it, is often very convenient, in any circumstances, and especially when snow falls, as there is no shoveling required. Mr. Warren R. Dunston, of Dorset, Va., sends us sketches

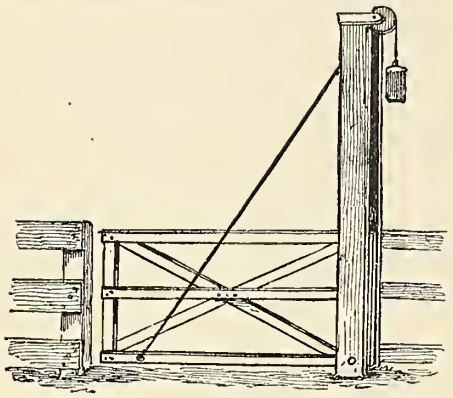


Fig. 1.—THE GATE SHUT.

of one easily constructed, and adapted to general use. It may be three, four, or five barred, as desired, and of any convenient width for the use to be made of it. The post, firmly set, extends a little higher than the length of the gate. In front of this and firmly fastened to it at bottom and top, is a board at sufficient distance from the post for the gate to move easily between them. An iron bolt through the large post, and the lower end of the right upright gate bar, serves as a balance for

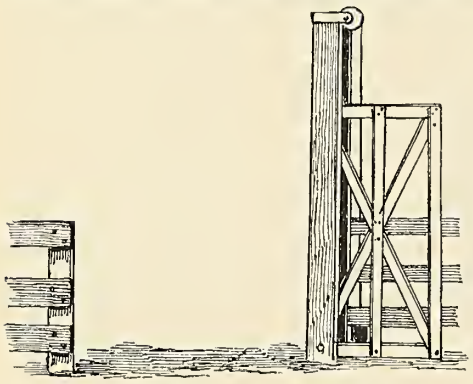


Fig. 2.—THE GATE OPEN.

the gate to turn on. A strong rope attached to the bottom of the gate, as shown, runs over the pully and has a weight of iron or stone that nearly balances the gate. The opened gate is shown in fig. 2.

Ayrshire Herd Tests.

The breeders of Ayrshire cattle, at their annual convention last winter, offered fifty dollar prizes for the best milk, butter and cheese tests, made in herds of Ayrshire cows of not less than six, and twenty-five dollar prizes for the best milk and butter tests made by single cows, the tests to continue through the year, and to be made under certain conditions named. The breeders are allowed all the time they need, up to November first, to test their cows and make up their herds before "entering" them. It is greatly to be desired that a number of good herds should compete for these prizes, and that the single-cow milk and butter prizes should also be well contested for. We have great faith in the Ayrshires, and would be glad to have it proved that the breed not only yields milk of the best average quality, which we believe to be true, but that it produces it on a less quantity of food. There is none among all the breeds of cattle usually met with in this country, the milk of which is so easily digested, and which contains the elements of perfect food in such desirable proportions as does that of the Ayrshire. The milk of the Jerseys and Guernseys is richer and less easily digested. That of the Devon is also very rich; the milk of the Shorthorn and of the Dutch cows is rich in casein (cheese), and is said to be not so digestible. One cause, no doubt, for the superior digestibility of Ayrshire milk, lies in the fact that the butter globules average much smaller in size, than those in the milk of other breeds. This makes the milk a more perfect emulsion, and of a more homogeneous character. The real value of Ayrshire milk is not in its quantity alone, for it is quite likely the Dutch cows—a few of them—will beat the Ayrshires in quantity, but in quantity of milk when compared with the food consumed, and in the quantity compared with the amount of solid food contained in the milk. In these tests this will be shown by the quantity of whole-milk cheese made from the milk of the herd. One of the conditions is that the quantity and character of the food shall be accurately known and certified to. No one will think of restricting the feed of his cows, except to prevent surfeit or damage from over-feeding, for it is a well recognized fact, that great producers are always heavy feeders. A variety of food is of course important, and the character of the food given to the milch cows should certainly be a matter of careful study and experiment.

Should the Ayrshire breeders take hold of this matter with the energy its importance deserves, we may expect a "boom" in Ayrshire stock, as great or greater than that which followed systematic testing for butter among the Jerseys, the results of which are well known. The Dutch, whether called Friesian, or, most absurdly, Holsteins, will have to look to their laurels. There seems now to be a general belief, in the West particularly, that the Dutch are the most profitable milch cows. Perhaps it is true, but the people will demand the proof, and so far there is very little evidence to base such an opinion upon. Tests have been made in abundance, but in very few instances has the milk-product been compared with the food consumed, and in no case that we have seen, has the actual food value of the milk been demonstrated, and it is especially important that this should be compared with the food consumed. The time certainly is favorable for tests of this kind, and we feel that the thought and labor of good breeders can be expended in no other way so profitably.

Growing Pumpkins with Corn.

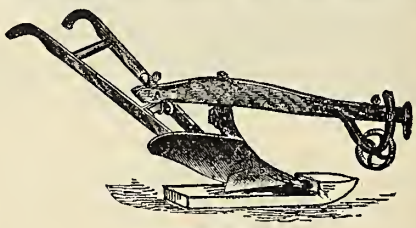
Pumpkins are valuable for stock in autumn and early winter, or as long as they can be conveniently kept, though the amount of nutriment, in proportion to bulk to be taken care of, and their liability to decay, have led most farmers to discard them, and adopt roots or squashes for succulent food. As a rule, every crop needs all the ground it occupies, and all the air and sunlight available. Corn is a "sun plant," and to shade the soil and the lower stalks with the dense foliage of pumpkin vines, must be more or less injurious, even if the latter do not rob the former of any needed nutriment. On very fertile, new soils, with short-stalked varieties of corn, in localities where frost is not to to be feared, it may be allowable to plant pumpkin seed at the second hoeing, in every third or fourth hill, in each second or third row. With favorable weather, the corn will produce about the usual yield, and after the early gathering of the corn, the growing pumpkins thus exposed to full sunlight, will ripen up those pretty well developed. As a rule, let the pumpkins have the whole ground; but still better are the harder fleshed squashes, which will probably supply more nutriment than field pumpkins, whether for man or beast.

SAVING CROPS AND STOCK FROM FRESHETS.—It is very hard, after having raised crops or stock, to see them swept away by a flood, as very many have done during the present year. Those having farms on low lands liable to overflow, destroying grain or drowning stock, can provide against such loss thus: Select the highest spot of ground, and grading up with plow and scraper a narrow drive-way above high water mark; then build on each side of this drive-way on posts set in the ditches, made by the scraper, the cribs for grain, and the stables and pens for stock; also platforms for hay and grain stacks. This work can be done at the most leisure season of the year, and would not cost much more than the same preparations for farm animals made on the level ground. F.

Simple Carriage for Plows, etc.

Even where there are no stones, the common "stone-boat" is always convenient on any farm, for taking plows, harrows, cultivators and the like, to the field or from one field to another, over roads, grass, and soft ground. For common plows we have used a simple wooden shoe made with an axe in a very few minutes. Split one-third from the upper side of a round stick from the wood-pile, three or four feet long, and five to ten inches in diameter. Cut a notch two or three inches deep, a foot or so from the front end, and split off another piece down to this notch. With the corner of the axe, or a chisel, cut a small notch in the elevated front end to receive the point of the plow. Round up the front like a sled runner, and the thing is done. If preferred, use a large stick, and flatten the bottom of the shoe to give a broader base.

Mr. Reuben Harlan, Covington, La., recently saw a plow carriage on a Southern plantation. It was a plank of hard-wood eight feet long, a foot wide, an inch and a half thick, rounded in in front like a sled runner, that it may easily pass



A PLOW SHOE.

over roots, stones, etc. A piece of trace chain, eighteen inches long, is fastened to the plank with staples, 18 inches from the front end, leaving it loose for the plow point to slip under a little distance. Pressing the handles will lift the front end to pass over large obstructions. The plowman can ride on the rear. Mr. H. says, "he has seen ten plow teams thus rigged coming in from a cane field on a gallop, and by the dexterity of the driver, the plows were thrown from side to side, and jumped gullies, roots, etc." Experience is the best test, but a plank four feet long would seem to be preferable, leaving lazy drivers no chance to ride, as it would be hard on a weary team to drag a man's weight on a plank having so large a friction surface.

Mode of Planting Peanuts.

B. W. JONES.

Peanut planting is done any time in May. The ground should be ridged and otherwise broken by plowing several weeks beforehand. Soil suitable for the peanut does not harden or pack much under rain and sun.—The best soil for this crop is a white or chocolate-colored sand. Some prefer a reddish sand, but that is more likely to color the peas and make them less salable. Any dry, open soil, having plenty of lime in its composition, will produce good peanuts. It should be clear of weeds and other coarse rubbish; hence ground in corn, potatoes, or some cultivated crop last year, is preferred. In planting, the ground is marked in rows about three and a half feet apart, and if any fertilizer is used it is applied in the drill before ridging. The ridge is formed by running a light furrow on each side of the drill, lapping the dirt in the middle. These ridges are afterwards knocked down nearly flat, by drawing over them from end to end a tolerably heavy pole, or board, or piece of scantling, attached to shafts or small poles for the horse. This is long enough to reach across two, three, sometimes ever four ridges, and they are flattened so as to leave only a little elevation to keep the seed out of water in case of a heavy

rainfall before it comes up. Some dispense with ridges, and lay the seeds flat on the surface, only pressing them slightly with the foot. This saves labor, but as a rule the ridging is best. For this the same plow is used for the furrows as for corn or other crops.—The distance apart varies considerably, ranging from ten to twenty inches. Sixteen inches is a fair distance for the hoe in weeding, and for spread of vines on land of medium quality. An implement with a wheel is pushed along the ridge, points or pins at given distances marking the place on top of the ridge for the peas. Care is taken not to have the holes more than two inches deep. The pea, a single kernel in a place, is then dropped by hand and covered by carefully pressing a little soil upon it. The land is left in a smooth state for the first plowing. Being a tropical plant, the peanut requires warm sun all the time. We have known it planted all through the month of June, but it should generally be up and growing by the first of that month here. Cold, rainy weather about the time of planting is very detrimental. The crop can be and is already grown successfully much further North than Virginia.

Simple Leveling for Draining, Etc.

For extended, expensive operations in draining, ditching, grading, irrigation, and the like, it is cheapest in the end to secure the services of a civil engineer or good surveyor with delicate instruments. But for ordinary farm draining, ditching and grading, most men can extemporize simple apparatus, or borrow a common spirit level from a carpenter. We have secured quite accurate results thus: Select a perfectly straight thick board or plank four feet or more long, of any width above five inches, the upper surface planed smooth. If not already painted, rub a little oil over the top, wiping it clean. Lay this upon or near the ground as near level as you can.—Pour half a teaspoonful or so of water upon its middle, covering four to six inches lengthwise and two or three inches wide. Carefully elevate any side or end needed to bring the edges of the little pool of water to an equal



Fig. 1.—AN EASY METHOD OF LEVELING.



Fig. 2.—A CHEAP LEVEL.

thickness. One can sight along the upper side or an upper corner, to within an inch fall or rise in one to two hundred feet, as in figure 1. An assistant at *a* marks the place on the stake, a motion of the hand up or down directing him to raise or lower his finger. Other stakes at *b*, *c*, *d*, etc., can be marked to show the elevation of this surface at each point, and how deep to dig. It is well to try the board elevated on sticks or stocks at *a* and sight back, to test the work.

A very simple home-made leveler we have used with much satisfaction is made thus: A cross-piece

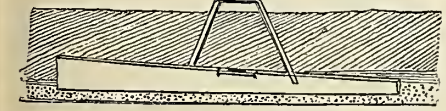


Fig. 3.—LEVEL IN SHAPE FOR DRAINING.

of inch stuff, four inches wide, three to four feet long, is firmly nailed near the top of a similar piece five feet long, sharpened at the foot, with two bits of blocks in the corner if it be much used, to give it firmness. A scratch-all mark runs exactly down its middle front, with a small pin at the top, from which a strong thread or light cord is suspended with any convenient weight on its lower end. With the cross-piece exactly at right angles to the upright, easily secured by using a good steel square, it will be level when the plumb-line coincides with the mark, running the length of the upright bar, and may be sighted along its upper edge.

"Picket," Morrisonville, Ill., sends us his plan, which is essentially a long sixteen foot fence board,

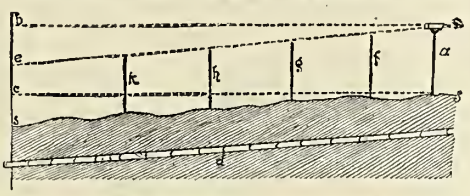


Fig. 4.—LEVELING WITH CARPENTER'S LEVEL.

perfectly straight edged, with two laths nailed on each side of the center as a handle (figure 2). This is set on edge, and upon the middle of its upper edge is placed a "fifteen-cent pocket level." The longer carpenter's spirit level would be more accurate. When the fall is decided upon, another board is cut to move along the bottom as the drain is dug. Thus if the fall is two inches in sixteen, and a sixteen-foot board is two inches narrower at one end when the top is kept level the bottom edge moved along the excavtion will indicate the proper shape, as in figure 3.

Mr. J. Bartlett, Oshawa, Ont., sends us sketches which we combine in figure 4. Let *s*, *s*, be the irregular surface; at the highest point set *a* four feet high, and with a carpenter's level, mark *b*; then mark *c* four feet below it on the stake, which may be one hundred feet or more away. From the distance between *c* and *s* judge of the fall necessary to have the drain sufficiently below the surface at that point. If this be say two feet, mark *e* two feet below *b*.—Then at various points as at *f*, *g*, *h*, *k*, etc., twenty to thirty feet apart, set stakes marking them in the line between the eye and *e*, either by sighting with an assistant, or stretching a line. The drain *d* will be equally distant below the tops of these stakes. A line stretched between the tops of these, or near the ground at equal distance from the stake tops will serve as a guide for the bottom of the drain at all intervening points.

The Care of Fruit Trees.

PROTECT THE ROOTS.—In transplanting or handling trees, recollect that every minute of exposure to the air injures them. If a tree can not be planted at once, make a hole and bury the roots. Those who go to a near nursery and take home their own trees, should puddle them. Make a hole in the ground a foot deep and as large as needed. Have a plentiful supply of water. Pour water into the hole and stir up the soil, until a thin mud is formed. Draw the roots of the trees through this, until they, even the smallest, are completely covered with mud; then sprinkle dry soil over them to dry them off. This "puddling" or "grouting" of the roots, as the English call it, is useful not only for trees, but for plants of all kinds.

PASTURING THE ORCHARD.—It is a singular fact that the orchard is the only field that farmers, as a general thing, expect to yield more than one crop. There is so much apparently unoccupied ground between the trees, that there is a desire to utilize it with some crop. When the trees are in bearing, they need all the soil. While the trees are young, a manured crop may be grown between the rows. The best treatment of an established orchard is, to sow it to clover and pasture young pigs upon it. By this the fruit, soil and pigs will be benefited.

STAKING NEWLY PLANTED TREES.—In exposed localities, trees are apt to get a "list" in the direction of the prevailing winds. If the trees are small and properly pruned at planting, there will be less trouble than with large trees, which must be staked. The safest way is to drive two stakes at a little distance, upon each side of the tree, and secure the trunk to both stakes by means of a straw band, or soft rope so as not to chafe.

INJURED TREES.—Nursery trees when sent a long distance, may be injured by drying, and when received, the bark will be shrivelled, and the tree apparently dead. Such trees may usually be saved. Open a trench large enough to receive them, and lay in the trees, root and branch, and sprinkle in the soil among the branches, laying the trees one upon another, taking care to have the soil come in contact with even the smallest branches. The bark will gradually absorb moisture from the soil, and in a few days become plump and apparently as bright and as fresh as ever.

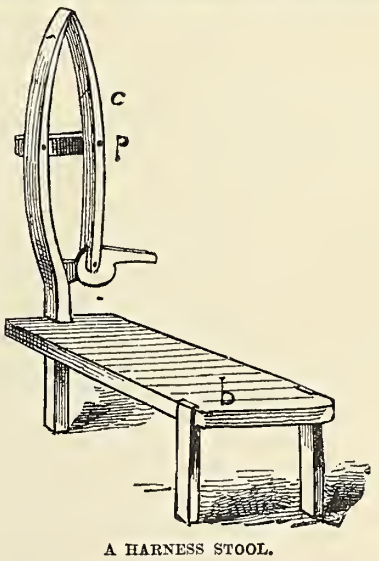
STARTED TREES.—If trees are transported in warm weather, especially if packed moist, the buds will push, and when unpacked will be found to have white, weak shoots, several inches long. The only way to save such trees is to cut back every branch to a good bud that is still dormant.

Selling Eggs by Weight.

There is from twenty to thirty per cent difference in the weight of eggs, yet the custom is almost universal in the Eastern markets, of selling them by the dozen at a uniform price. Even ducks' eggs, which are much larger, and by some regarded as richer, bring no more than the smallest hen's eggs of not half the weight. In California, eggs, fruits, and many other articles that are here sold by the dozen, the bunch, or by measure, are sold by weight. The practice is a good one, and works beneficially for all parties, especially for the producer. It operates as a premium upon the cultivation of the most productive varieties of fruits, vegetables, and farm stock. The farmer, who is pains-taking with his poultry and gets the largest weight of eggs, has a fair reward for his skill and industry. The present custom is a premium to light weights, and good layers. We need a change in the interest of fair dealing in trade, and, if necessary, it should be enforced by legislation. If the legislature is competent to fix the weight of a bushel of corn or potatoes, it can easily regulate the weight of a dozen eggs, and thus promote exact justice between buyer and seller.

Stool and Clamp for Harness, Etc.

Mr. C. B. Clark, Peoria, Ills., sends us a description of a combined bench with simple clamp for holding harness and other articles for repairing, etc. The bench or stool *b*, of any desired size, is supported by two legs near one end. The other end is held up by the foot of the long claw, extending to a convenient hight for the operator. A



A HARNESS STOOL.

shorter claw, *c*, is fastened to it by a cross-piece *p*, about an inch thick and three inches wide, passing through a slot in the jaws, in which it works easily but firmly on two iron pins, a little more than half-way up from the bench. In the lower end of the short jaw an eccentric works on a pivot and against a projection on the larger jaw. Depressing the handle to this eccentric or cam closes the jaws at the top with all the force desired.

What are English Horse Beans?

Beans are so often mentioned by English writers for their great value as food for horses, that occasionally some one in this country wishes to try them and asks about the variety. The English Horse Bean is not, as some suppose, a variety of our field bean, but a very different plant, belonging to a different genus. This is a variety of what, in its garden forms, is known as Windsor Bean, Mazagan Bean, etc. The stalk is erect, stout, simple, and three feet or more high, with no sign of twining stems; the leaves are of the shape shown in the engraving; the flowers, in clusters in the axils of the leaves, are followed by thick fleshy pods.



THE HORSE BEAN

The seeds (*a*,) are flattened and brown; those of the horse beans being not one fourth as large as the garden varieties. They contain a very large amount of nitrogenous matter, but are rather indigestible; on this account, when fed to horses, they are mixed with two or three times as much oats. The horse bean has been tried occasionally in this country, but our hot weather stops their growth before they have attained their full size. In trying the garden varieties we have found them to become so infested with plant lice, that growth was impossible. It is not at all likely that this bean can ever become one of our farm crops.

Shade Trees—Planting, and After-care.

REV. J. W. GUERNSEY.

In no other way can we, with so little expense of time, labor, and money, add so much to the comfort and pleasantness of our homes, as by the judicious use of shade trees. Once set, nature will keep them in repair, adding some new beauty of form and repainting them with her choicest colors every year. On the north side of buildings, to break the wind, evergreens are to be preferred; and of these the hemlock is the best. For shading, deciduous trees should be used, which will shut out the sun in summer and admit it in winter.

Where there is room enough for them to grow to their full size, the maple and elm are, undoubtedly our best trees; but if they are to stand near a house, some smaller tree should be chosen. Both maples and elms, when set for shade, are liable to be ruined by two things, neither of which affects them in the forests. Borers, beginning near the ground, work their way upward in an irregular course; sometimes nearly encircling the trunk before they come to the surface, and carrying sure death along their entire track. The only remedy is to watch for them, and kill them as soon as they begin to work. The second danger is the starting of the bark, which is no less fatal. This occurs only on trees of a few inches in diameter, and on the south and south-west sides of such that are peculiarly exposed to the sun. When the tree is frozen, a warm sun thaws a section of the bark, without thawing the wood beneath it; the vital connection is broken, and the bark and adjacent wood die. Small trees thaw through and escape injury, and large ones do not thaw at all at such times. Anything that will shade the trunk at the exposed points, will make it secure. The elm has a deadly enemy in the canker-worm, that frequently destroys the entire foliage from year to year, until the tree dies. The most usual remedy is to guard the trunk by some contrivance that will prevent the female moth, which is wingless, from ascending it. The Lever-wood, or Hop Hornbeam, is a hardy symmetrical tree of moderate size. Its branches and foliage are very fine. Its fruits, which resemble hops, are very abundant, and remain on the tree during the entire season; their modest russet beautifully combining with the deep green of the leaves. The birches, in their several varieties, combine, in an unusual degree, the requisites of a shade tree. They grow rapidly, are hardy, flourish on almost any soil, and are seldom injured by insects. The trunk is picturesque in its irregularity, throwing off numerous small branches, that divide and sub-divide into minute, flexible sprays, that sway in the breeze with infinite grace. The pearly white or bright amber color of the bark on the trunk and large branches, passing by insensible gradations through the various shades of garnet and brown, to the deep purple of the remotest twigs, is a beauty peculiar to these trees. They are among the earliest to put forth their leaves and the latest to drop them. The leaves are beautiful in form and exquisite in color; and when touched by the autumn frosts, their dying hues of burnished gold are scarcely less gorgeous than the royal crimson of the maple. Their swelling buds herald the approach of spring, long before the maple and elm have scented its coming. In the rigorous depths of winter they commence to hang out their pendulous flower buds, ready to unfold their modest blossoms in the first warm breath of spring. The minute sub-division of their branches secures a dense shade, even from a small top, and gives such flexibility that they are rarely broken by wind, snow, or ice. If a maple or elm is cut down, all that remains is an unsightly stump; but a birch stump will send up a cluster of sprouts that in a few years form a group of trees more beautiful, if possible, than the original one.

Trees that have grown in the open air, will do better than those from thick woods. In selecting, those only should be taken that are perfectly sound; a dead spot, however small, will extend until it ruins the tree. Trees with short trunks and large thick tops should be chosen, avoiding such as divide into two nearly equal branches, for they will be very likely to split down. In taking up trees, every root should be secured to the uttermost fiber as far as possible, and without splitting or bruising them, and the holes for planting them should be large enough to receive the roots in their natural position. While out of the ground, the roots should be protected from the air and kept moist, and in setting them fine rich earth should be packed around all the fibers. Trees should be staked to prevent the wind from starting the roots, and well mulched to keep the ground moist and loose. A vicious practice prevails very extensively of cutting off the entire top. This is the death warrant of the tree. It may put out new branches and do well for a few years, but the wound will seldom heal; there will be a dead stub above the new limbs, that will ultimately decay down into the center of the trunk and the limbs will break off or die. This process, in its various stages, may be seen in a large proportion of the trees that have been treated in this way. If a trunk must be cut off, let it be just above a thrifty limb, whose growth will heal over the wound. If branches must be removed, they should be cut close to the trunk, great care being taken not to injure the bark or wood, the cut made smooth and covered at once with wax or paint so as to exclude the air. Shade trees are usually set too thick, from two to four times too many being put on the ground; consequently, as soon as they have grown a little, they interfere with each other, and a struggle for existence commences, in which all suffer and symmetrical growth is prevented. Trees should never be allowed to exclude the direct sunlight from a house; to do so, is to make it unfit for a dwelling. To remedy this by pruning, will leave naked trunks covered with unsightly scars, too large to heal over, which will ultimately decay and kill the tree. Thinning out is but little better, for the trees that remain will be stragglers standing at irregular distances, with forlorn and badly shaped tops.

Shade trees should be carefully watched, and all branches that start where they are not wanted, that will ever interfere with streets, walks, buildings, or other branches, should be promptly removed. Such branches are often neglected until their removal irreparably injures the shade tree. All dead limbs should be taken away at once.

Good King Henry.

A gentleman having seen "Good King Henry" mentioned as a useful garden plant, called at our office to learn more about his Majesty. Why the plant should be so named is somewhat obscure. One writer says that this was so called to distinguish it from another and poisonous plant, known as "Bad Henry," which does not explain why it should be a Henry, and a king at that. In some parts of England the plant is called "Good Fat Hen," which some have tried to explain by asserting that it was used to fatten poultry. As it is not known to be fed to poultry, this derivation is doubtful, and it is more likely that Henry was shortened into "Hen," than that it was derived from the food of hens. As to the plant itself, it belongs to the Pig-weed family. Linnæus recognized the common



GOOD KING HENRY (*Blitum Bonus Henricus*).

name when he called it *Chenopodium Bonus Henricus*. Though later botanists have placed it in the related genus, *Blitum*, it still retains the original specific name, and is now *Blitum Bonus Henricus*. The plant is a native of England, and is very sparingly naturalized in this country. It has a perennial root, and its stem, from one to three feet high, branches but little. The shape of the leaves, etc., is shown by the engraving of the upper portion of a plant. It is, like the related Pig-weed, Goosefoot or Lamb's-quarter, very acceptable as greens,

for which use it is cultivated in parts of England, and occasionally in this country. The seeds are sown in a seed-bed in spring, and when large enough, the plants are transplanted to rows fifteen inches apart, and set every ten inches in the row. The leaves are fit for use the following spring, and are cut as soon as large enough. It is also called in England, Perennial Spinach, All Good, Tota Bona and Mercury. The last name is in parts of this country applied to the Poison Ivy. The origin of the common names of plants is puzzling!

Some Useful Ornamental Shrubs.

The value of ornamental shrubs is not generally appreciated, perhaps because the better kinds are not popularly known. Lilacs, Snow-balls and a few others, are found all over the country, but the newer sorts are slow in making their way. Many an owner of a city or village lot, and many a farmer with a neglected front yard, would be glad to beautify them and make them attractive, if it were not so much trouble to keep them in order. The first requisite in a village or country front yard is grass. A good turf being provided, a few clumps of shrubs will be all the ornamentation needed. If flower-beds can be taken care of, all the better, have them by all means, but grass and shrubs will make the place satisfactory to the owner, and a delight to the passer by. Our swamps, thickets, and woods, will furnish those who search for them an abundance of fine shrubs for planting in the grounds. But every one can not spend time in collecting these, and must obtain their material from the nurseries, where there is a great variety from which to select. We point out a few really good and useful kinds that may be readily obtained, and which ought to be more generally known.



Fig. 1.—GOLDEN BELL.



Fig. 2.—JAPAN GLOBE FLOWER.



Fig. 3.—GORDON'S MOCK-ORANGE.



Fig. 4.—ROSE OF SHARON.

THE GOLDEN BELL (*Forsythia*).—Very early in spring, before the leaves appear, these Japanese shrubs hang out their golden yellow bells. The two most cultivated are the dark-green (*F. viridissima*), and the Hanging Golden-bell (*F. suspensa*), figure 1. Both have long slender branches which bend gracefully, and in the latter especially, touch the ground. They may be kept in the shrub-form, by close pruning, or be trained against a building.

THE JAPAN-GLOBE-FLOWER (*Kerria Japonica*).—The flower of this in its single state, looks like a large yellow blackberry-flower; that form is rare. The kind that has long been in gardens is double, and more common. The flowers are so double that they look like little golden balls or globes, figure 2. These are borne upon long, slender, green stems, which should be cut back to keep them within bounds, or they may be trained like those of Golden Bell, against a fence or a low trellis. The light orange-colored flowers are produced all summer.

THE MOCK ORANGE (*Philadelphus*), often called Syringa. There are several of these, which produce an abundance of their pure white orange-like blossoms in summer. Some are pleasantly scented, but those with the largest and whitest flowers are not so. One of the finest is Gordon's Mock Orange (*P. Gordonianus*), figure 3, a native of Oregon. It blooms ten days later than the others, and its large flowers, of a very pure white, are slightly fragrant.

THE WEIGELAS.—When Mr. Fortune introduced these plants from China and Japan, he did a great thing for our gardens. They were first called Weigelas, and later were placed in an older genus, *Diervilla*, but they may well retain Weigela as a garden name. The first introduced was *W. rosea*, but now the catalogues offer over twenty species and varieties, with flowers from pure white to the deepest purple, and some have handsomely variegated leaves. They bloom in June and July, and continue long. A clump of different kinds is a grand sight. They are improved by severe pruning.

THE ROSE OF SHARON, also called shrubby Althæa, is one of the oldest of garden shrubs, yet has in recent years been so greatly improved, as to be more valuable than some novelties. Its blooming in August and September, gives it a special value. The proper botanical name is *Hibiscus Syriacus*. The flowers, as large as Hollyhocks, are single (fig. 4), and double, from pure white to dark-red and purple. It must be severely pruned. A variety of this is one of the best shrubs with variegated foliage in cultivation. This small collection of shrubs covers the season from earliest spring until frost. Other selections could be made to do the same, but these are chosen because they are effective, easily cultivated, and cost but little at the nurseries.

Variety in Ornamental Planting.

ELIAS A. LONG.

There are no good reasons for the prevailing lack of variety in the trees, shrubs, and other materials employed in making American homes attractive. Among the many hundreds of trees, shrubs, and flowers, that are hardy in nearly every part of this country, and which are now kept for sale in the leading nurseries, there is in the matter of flowers alone, for example, a wonderful variety. There is enough difference among these in their season of coming into bloom, to enable one to make a selection, that would afford a wealth of beauty every week in the North from April to October, and for some months longer at the South. Then the variety that is afforded by different forms, habits, and sizes of such plants, the colors and shapes of the leaves, branches, and the ornamental fruits of some, is very great, and adds to their beauty and interest. The evergreen trees and shrubs must also be mentioned for the peculiar attractions they contribute throughout the entire year. Then there are the hardy climbers—a most useful and easily managed class of ornamental plants, and the aquatic, bog, and rock-flowering plants and ferns, all of which possess value for special uses. Besides the hardy kinds, possessing permanent value, there is an endless assortment of annual and perennial plants, raised each year from seeds, bulbs, cuttings, or in a green-house or window-garden, that are easily grown, and which serve to render the garden gay for months in the summer, with their characteristically bright flowers. Now all these things are so easily and cheaply procured in the nursery and seed establishments, that no one who has a plot of land surrounding the house should put off for any length of time, the setting out of a sufficient assortment to amply embellish the place throughout the entire year. To make the surroundings of one's home attractive, will pay in dollars and cents, besides contributing to the enjoyment. The writer but recently attended the appraisement of some ornamental trees, twelve years planted, that had to come away on account of the widening of a street. The amount allowed the owner as a remuneration for individual trees was as high as seventy-five dollars each. The same trees when planted perhaps cost one dollar each, and the labor of setting, say one-half as much more. It was their worth for shade and ornament that governed the price. There are few places where the presence or absence of fine trees and shrubs would not similarly effect their valuation if sold. If there are children, judicious investments in beautifying the surroundings, will afford invaluable returns in cultivating in them a love for and an interest in natural objects; inspiring in them a desire for the study of botany and natural sciences, than which nothing is more pure and satisfying for young minds. There is much complaint of the inclination of the young to leave rural homes for town life. Nothing would be more potent to arrest this tendency, than to spend some money and time in rendering the home attractive by the means that have been suggested. Resolve to set out and properly attend to a suitable selection of trees, shrubs, and flowers.



Holders for Whisk-Brooms.

Whisk-broom holders like figures 1 and 2, when neatly made, are quite ornamental and very useful. They are appropriate for a bedroom or hall. The back of figure 1 is wood, cut out with a fret saw, and has a simple pattern around the edge. Walnut, imitation ebony, or other dark wood, is preferable to holly or other light color, as it shows dust and soiling less plainly. Midway between the top and bottom, and at an equal distance from each edge, cut two slits just large enough to let the embroidered band slip through. For the band work with bright-colored silk a strip of velvet an inch and a half wide. The ends are passed through the slits and fastened on the back with very small tacks, making a loop on the front just large enough for the broom to be slipped in half its length, and pulled down through it when taking it out for use. Figure 2 is entirely of home manufacture. Two pieces of heavy pasteboard are cut to a true circle of the right size by marking around a dinner plate



Fig. 1.



Fig. 2.

and using a sharp knife or scissors. Each piece is covered with gray linen, and the front one is bound around the edge with narrow blue ribbon. The band is a strip of gray canvas, worked with blue, rose color and yellow, and is sewed to the front piece. Sew two bows of blue ribbon near the upper edge. The front and back pieces are then stitched together over and over with silk the shade of the ribbon. It is suspended on a loop of ribbon with a bow at the top sewed on the back. T. K. Y.

Mantel Lambrequins—Catch-Alls—Splashers.

The various tasteful articles, now so common, which make home attractive, are not always within our reach, however great may be our love for the graceful and beautiful. Your friend's handsome cushion, or screen, or banner, seems a small affair of plush, or velvet, or gay ribbon, etc., but when one counts up the bills of pretty materials, the embroidery silks, the fringes, the this, that, and the other, needed in the construction, the sum is frequently more than the small purses of economical folk can afford. Yet we all want some pretty things about the rooms, some things that small means, and fragments of time can compass, and we can have them. The present style of short lambrequin, or drapery for the middle of the mantel, on which a clock or other heavy article may stand, can be easily made of almost any heavy cloth, of desirable color. It may be a piece of black broadcloth, with cretonne flowers or figures cut out, and outlined with embroidery silk for a border. Or you may with the Diamond Dyes, now so much used, color the cloth to suit the fancy or the furniture. Lay on a piece of black velvet ribbon an inch wide, or wider if you prefer, about two inches from the edge of the lambrequin, and with bright embroidery silk, of good contrasting color, herringbone across the velvet, or catch the edges.—A neat pocket, or "Catch-all," may be made with an old straw hat, especially one of mixed braid, by lining it with turkey-red calico, and bending the front lower than the back, fasten it to the wall. A bunch of dried grasses, held with a bow of bright ribbon, gives a pretty finish to the front.—A neat Wash-stand Splasher may be made of a piece of écru or buff linen, such as is used for window-shades. Indeed, a piece of an old window-shade will answer, if stiffly starched. Cut the length and width desired, bind with scarlet skirt-braid, or carefully cut a scalloped edge. From some gray cretonne, cut a graceful spray or bouquet of flowers, and fix them with mucilage firmly in the corners of the splasher. Put on also a small center piece of the same and you have quite an addition to your room.

LUCY RANDOLPH FLEMING.

Home Hints.—Clothing, Etc

The prevailing style of hair dressing for ladies for sometime past has been a twist or braid knotted low in the neck. This has not been becoming to many, and there is a prospect of a return to the other extreme—wearing the hair very high on the top of the head. Of course very young ladies will retain the recent style as most youthful. Misses wear one or two long braids tied with ribbons. Some braid them half way and leave the ends curled. It is said that curls, which have been laid aside so many years, are coming back to be the "rage." This will be welcome to those who, for fashion's sake, have tried so hard to thwart nature by brushing and combing to straighten their natural curls. Children still wear their hair banged, *a la* Esquimaux, to the ears, and long behind. Some physicians condemn bangs as very injurious to the nervous system, and in several known cases of spasmodic nervous affections parents have been advised to put the hair back from the forehead. The round comb is used for this. "Frizzes" of some kind are becoming alike to old and young, and the cases must be rare where one has not enough hair of her own to use for this purpose. The frizzes should be light and simple. The fashion of covering the forehead nearly to the eyes with "front-pieces" or "wigs" is simply hideous, and every real lady will prefer to make the most she can of what nature has given her and be satisfied. A very little hair will look a great deal more if dressed in puffs which are always ladylike and becoming. Fancy combs and hair pins are much used as ornaments, and are in every style from the pretty imitation of shell to those of silver filigrees in exquisite flowers or gold set with pearls and diamonds. But every one should study her own style, and so adapt the manner of dressing her hair to it, that no special attention shall be drawn to her by any attempt to follow a fixed fashion merely which may be becoming to one and very unbecoming to another.

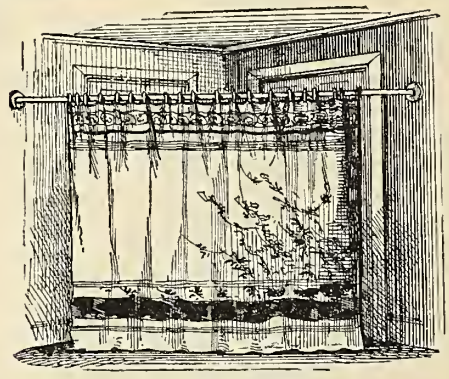
"How shall I make over last season's dresses for my children who have outgrown them?" is the perplexed mother's query just now. The pretty and favorite guimpe will help out here. This is a white waist, with or without sleeves, made plain or tucked and trimmed with insertions. It is cut three or four inches longer than the waist line, and a facing is put on through which a string is run to draw up at the waist. The overdress is a plain princess style, or a gathered waist with a belt, either of them cut low in the neck, with shoulder straps or puffs. The sleeves may be retained if preferred, and a white cuff added to match the white waist. The straps or puffs will lengthen the dress as required. Another way is to insert a yoke of Hamburg embroidery. This comes now in very handsome patterns for yokes, sleeves, and apron fronts to white dresses. White dresses are much worn in the warm season and are becoming, both to young and old. There is a large variety of fabrics. Satteens, which are so pretty in colors, are equally so in white; they are plain, striped, dotted, checked, in blocks, and also corded. In ready-made white dresses poor Victoria lawn has been used. There is now a new fabric called "India linen," which is much better, though it is really cotton. White dresses can be bought very cheaply, ready-made, but of course they are much more desirable if home-made. They should be simply made, but of good material. Colored satteens are very handsome on pale tinted grounds, with designs of flowers, leaves, fruits, acorns, berries, etc. Some have Japanese designs of birds or human figures, and others of miniature landscapes. They cost thirty to fifty cents a yard. Some make them up with plain goods to match, but they are usually made of one piece. The style is a plain, unlined basque, a short round skirt with ruffles, and a plain hemmed overskirt much puffed, but arranged to draw up with strings. Laces trim these dresses showily and come in gray and cream color as well as white.—Little girls and boys wear in all seasons every day costumes of wool, in dark blue or black trimmed with braid, blouse shape, with a plaited skirt for girls, and Knickerbockers for boys, with long stockings to match.

For spring outside coats for children and young ladies the redingote is most suitable. All dark colors are fashionable, and if plain have collars and cuffs of velvet. For travelling and very common wear they are made of checks and plaids, trimmed with the same goods. Little girls have often a small cape added, with a plaiting around it three or four inches wide, or trimmed with velvet. For little boys the ulster shape, double-breasted, bound with braids and with nice buttons, is always appropriate.—Pretty, soft caps, and a variety of Derby hats, go with them from which to choose.

ETHEL STONE.

A Curtain Screen for Doors.

It frequently occurs that a bedroom has no communication with the hall, except by passing through a parlor or sitting room, in sight of persons chancing to be there. If the bedroom and hall doors are near the corner, a convenient plan is to run a rod across, as in the engraving, and upon this hang a curtain of woollen stuff or chintz, by rings, so that it can be shoved to either side when not



A DOOR SCREEN.

needed to form a screened passage. Furnishing stores supply such rods with hooks to hold their ends, or one of wood may be readily turned, or worked out in a carpenter shop, to be stained and oiled.

A Home-Made Refrigerator.

A very useful ice box can be made out of an ordinary dry goods packing box. Mine is three feet each way. Inside of this is another rough pine box two feet each way. The side spaces and six inches at the bottom are filled with sawdust. The inner box is covered with tin internally and painted white. The cover is two feet ten inches each way, and double, with six inches of sawdust between the boards. It is fastened to the back of the ice box with strong iron hinges, and being very heavy it has pulleys with weights to raise and lower it. The pullies may be in the top of uprights nailed to blocks on the back, to be out of the way of the cover, or they may be suspended at any convenient point where the weights can descend. When shut down the cover fits in tightly, and is

flush with the top of the outside box, and lies closely upon the top of the inner box to exclude air, an important point. The whole affair can be put together in a few hours by any skillful man on a farm. It is best to have cleats nailed to the sides of the ice chamber to support a shelf made with wooden sides and galvanized iron rods or large wire

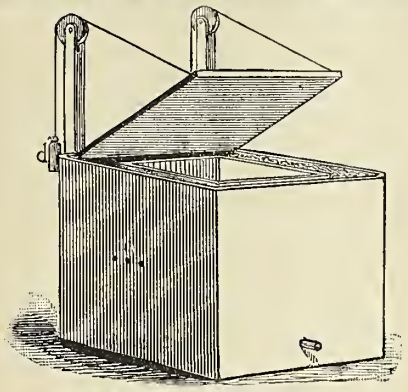


Fig. 1.—THE REFRIGERATOR.

in the center, and handles or holes on two sides to lift it by. Large blocks of ice, the larger the better, are laid in the bottom, which should slightly incline so as to run off all drip water, a few sticks being placed in the bottom for the ice to rest on. I have the drain pipe constantly open, and find the ice keeps longer if not in its drip. This is an excellent refrigerator if ice in good-sized blocks is supplied liberally, say every two or three days in very hot weather. On the tray with two large blocks of ice below I have kept delicate fish quite fresh for ten days in the hottest weather. The constant good circulation of air in the box leaves

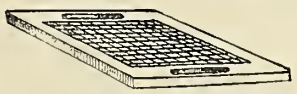


Fig. 2.—THE TRAY.

no close, musty smell as is common in ordinary refrigerators. At first I covered the sawdust all around flush with the top of the inside box with tarred felt, but found this did not answer well, so I subsequently placed a board cover over the felt.

St. John's, Newfoundland. D. W. P.

A Chapter on Potatoes.

MARY WINCHESTER.

PLAIN BOILED.—Wash and clip a bit from each end and drop into boiling water. Add a little salt, and cook until done. If poor and watery, peel and let them lie in cold water an hour or more before boiling. When done pour off all water, remove the cover and shake and toss them in the kettle before an open window or door, which will make them mealy.

BAKED.—Wash and boil until nearly done, then bake. They are much whiter and mealier than if simply baked, and it is quicker and takes less fire.

MASHED.—Peel, cut out all imperfections and boil in water a little salted. When done pour off the water and set the kettle off the fire, but where it will keep warm and mash thoroughly. Add sufficient hot milk to moisten, also a small piece of butter, and continue working until white and creamy. Serve while hot. Cold mashed potatoes may be cut in slices, dipped in beaten egg and fried in nice fat or dripping.

POTATO AND ONION STEW.—Slice raw potatoes and onions to one's liking, and place them in a stew pan. Cover with boiling water and cook tender. Season with salt and pepper and a little butter.

SARATOGA POTATOES.—Peel and slice very thin, and drop into cold water a few minutes. Drain and dry them in a towel. Have ready a saucepan of boiling lard, drop in the slices and fry a light brown. Lift them out with a wire spoon, drain in a colander, sprinkle a little fine salt over them evenly, and serve very hot.

DUCHESSE POTATOES.—Rub one quart of hot boiled potatoes through a colander. Mix well with them one ounce butter, a scant teaspoonful of salt, a pinch each of white pepper and grated nutmeg and the yolks of two raw eggs. Pour the potato on a plate, and, with a knife form it into small oblong cakes; lay them on a buttered tin, and brush them over with beaten egg and color a golden brown in a moderate oven.

NEW POTATOES.—Wash, scrape, boil ten minutes; turn off the water and add enough more boiling hot to cover, with a little salt. Cook a few moments, drain and set on the stove again. Add butter, salt, pepper, and a gravy made of about two tablespoonfuls of flour to a pint of milk. Or, when cooked and drained place in a skillet with hot drippings, cover and shake until nice brown.

POTATO SALAD.—Boil one egg very hard, rub the yolk fine, add one raw yolk; one teaspoonful each of corn-starch or fine flour, vinegar, sweet oil and salt, half teaspoonful of mixed mustard, a little cayenne pepper, and two teaspoonfuls of butter. Beat all very thoroughly together to a smooth paste. Slice cold potatoes thin, arrange in pyramid or mound-shape, and pour the mixture over; ornament with slices of boiled eggs, parsley, radishes and lemons as you fancy. Serve cold.

POTATO SOUP.—Boil one quart of milk with a little mace; boil and mash finely four good-sized potatoes, add a little butter and salt; pour the milk over the potatoes and strain. Beat three eggs well in a soup tureen. When ready to serve pour the soup over the eggs, beating them while doing so, and send to the table at once very hot. Season with celery or onion, or both.

POTATO SOUFFLE.—Boil six ordinary-sized potatoes, rub them through a sieve. Scald a teacupful of milk and a tablespoonful of good butter, add to the potatoes with a little salt and pepper and beat them to a cream. Add the yolks of four eggs, one at a time, beating them thoroughly. Drop a small pinch of salt into the whites and beat them to a stiff froth, adding them to the mixture, beating as little as possible. Have ready a well-buttered baking dish large enough to permit the souffle to rise without running over. Bake twenty minutes. Serve as soon as taken from the oven, and in the same dish in which it was baked.

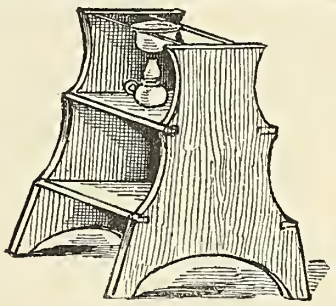
Make the Kitchen Pleasant.

EBEN E. REXFORD.

In most country homes, the kitchen is the most important room of the house, where more than anywhere else the family gathers, and the most time is spent by the house-keeper. First of all, let it be arranged as convenient as possible for work done there, and to save steps. Next let it be pleasant and home-like. Even if the family do not frequent it, it ought to be cheerful and bright for the sake of those who pass their chief time there. A picture on the wall will rest a weary eye, and be educating to those busy at work. Too often the kitchen is a cheerless place, associated only with hard, tread-mill work; no brightness on the walls, no easy chair inviting rest in its broad arms at spare moments; no paper to read in the little "between whiles."—Keep its walls sweet and clean with white-wash. I do not like paper on kitchen walls. If white is objected to, get alabastine for tinting them any color desired. A buff tone makes the room bright and sunshiny. Have the lower part darker, if not finished in wood, which is always preferable for many reasons. Beautify the windows in summer by training vines about them outside, and in winter with simple pretty lambrequins. If you want the room to have a shut-in cosy look at night, use Holland shades, to be drawn up or down as required. The kitchen cannot be too light. Hang pretty pictures on the walls. They need not be expensive; really good ones can be cut from some of the illustrated papers of the day. The father or sons can frame them cheaply. Have a lounge, and a rocker with soft cushion, a broad back, and wide, comfortable arms. A hanging lamp, that can be lowered or raised at pleasure, is a convenience for any room, the kitchen included. With everything clean and neat, as every house-keeper taking pride in her work will be sure to desire it, she will not be ashamed to receive unexpected visitors there.

A Stand for a Night Lamp.

Where a light is needed during the night for a sick person, especially if warm water or medicine be needed, and for an infant requiring warmed food, a stand something like the one here sketched will be found quite convenient. The ends may be of half or three-quarter inch clear pine, cut to any



A NIGHT LAMP STAND.

form desired, and with one or two shelves, according to whether the lamp used be a tall or low one. The hight needs to be such that when the lamp is on the shelf, the end of the stand will hide the direct rays of light from the sleepers. Two stout wires or small iron rods, placed lengthwise across the top, support a tin or other vessel containing water or food. The lamp can be turned down so that a very small flame, two inches or so below the vessel, will keep the contents at the desired heat. If for continuous use, the stand can be stained to imitate the furniture, and varnished; for temporary night use, it may be left plain, to be set away out of sight during the day.

Out-Door Seats.

There is an infinite variety of simple, cheap, convenient, home-made seats, that may be provided for a shady spot on the lawn, in the door-yard, in the garden, fruit orchard, etc. Figure 1 is a frame of saw-horse pattern, with two strong pieces in the upper corners, over which is stretched a canvas or heavy sacking having eyelets worked along its two ends. A cord through these can be drawn to any desired tautness. This may be of any size, from

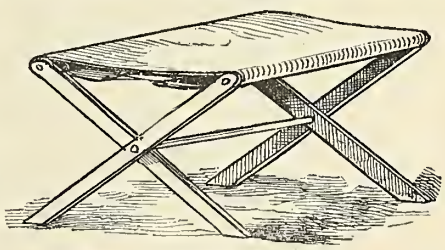


Fig. 1.—A SAW-HORSE SEAT.

a camp-stool to a cot or lounge, and be of colored or striped material, with stained or painted frame. Figure 2 may be a natural stump, with a board or

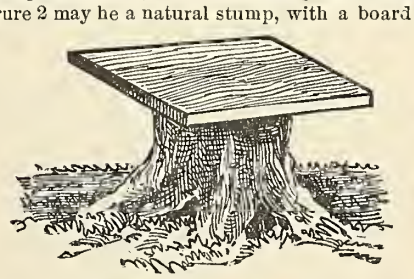


Fig. 2.—A STUMP SEAT.

plank spiked to its top sawed off level. A stump may be brought from the woods, its larger roots cut off for feet, and its top for the seat board.



Kittie's Lesson.

"Pease Kittie, tum an pay wis Daisy!"—It was a sweet, pathetic little voice; but Kittie, comfortably reclining on a couch, improvised from a blanket and pillow, never glanced from her book to the coaxing little petitioner, as she answered dreamily, "Pretty soon, don't tease!"—"Tan I have your beads to string?"—"No, you would lose them."—"Den tan I pay wis the dollies?" her chubby hand tenderly smoothing two china ladies in gorgeous pink and blue gowns that were reposing on the blanket beside the absorbed reader, who had spent many a Saturday afternoon upon their wardrobes.—"No, indeed, you would ruin their clothes," and Kittie angrily threw one arm over Angelina, the puppet in pink. "Do run away, Daisy, till I finish this story. What a bother you are!"—"But mamma told you to amoose me, and I isn't a bozzer," sobbed the sad-hearted child as she trotted sadly off to investigate a mouse hole with an antiquated tooth-brush.

It was very pleasant in the old attic, with the perfume of fruit blossoms wafting through the open windows; but Kittie Hill moved uneasily and brushed back her hair with an impatient gesture, as her mother's parting words came to her mind. "Now, daughter, I shall trust you to take good care of Daisy, while I am away; and try and amuse and make her happy." But Kittie was languid, and her story book was so interesting! She would go in a minute, but first must just see how the story would come out, and so read on regardless of the little sister who was now unusually quiet.—The flies buzzed drowsily, the dolls stared unblinkingly at the spiders overhead, and still Kittie never moved until through with the book, when she started to her feet, with the uncomfortable sensation of having forgotten her charge completely.—But where was Daisy? Not in the hammock or the swing, or in the play-house, behind the timber, for Kittie hunted everywhere. She could not have gone down stairs as she could not lift the trap door. The frightened girl noticed the absence of two large wings, taken from an eagle their father had shot, which usually adorned the walls. Hardly knowing what she did, Kittie ran to the window which opened upon a sharply sloping roof, and almost fainted at the sight of Daisy with the huge wings fastened to her shoulders balancing on the edge of the roof. With rare presence of mind she stifled a cry; but the child saw her, and called gaily, "See Kittie, Daisy not to be a bozzer any more! She doin' to fly away to heaven," at the same time holding out her short skirts, and dancing on her tip-toes.—With great effort Kittie restrained her voice, realizing that the least start might indeed send the little sister to heaven, but she said gently, "Oh! darling, come back; you shall play with Angelina and Seraphina all the afternoon."—"Weally!" and the dimpled face beamed with smiles, "Den I dess I'll not fly till anozzer day; but it's dreadful slippery here."—"Wait till I come to you."—But it was only by means of a stout rope that Kittie succeeded in getting the child safely within the window. That evening the mother clasped her baby tightly as she listened to Kittie's penitent tale of the proposed flight. For the older sister it was a lesson never to be forgotten.



TAKING IT EASY.

Drawn and Engraved for the American Agriculturist.

An Amateur May-Party.

BY AGNES (CARR) SAGE.

Brightly shone the sun, and sweetly sang the birds, and the crisp white muslins, and blue and pink ribbons laid out on the bed, looked fresh and pretty, as Maud Dayton brushed out her straight bangs, and Nancy her curly ones. It was a warm spring day, so unusual on the first of May, and they were dressing for the May-day fête, given to the Sunday-School by kind Miss Dorothy Felter, in the beautiful grounds around her old fashioned white house, on the bank of the river.—"There is to be a throne built for the queen!" said Maud.—"And a May-pole!" said Nancy; "pink, white, and brown ice-cream;" "gold and silver mottoes with fancy caps in them!" "loads and loads of biscuits and cake;" "croquet and tennis on the lawn!"—Thus the happy maidens went on recounting the anticipated delights, to the wondering ears of little Dolly and Dot, who stood by listening with rapt attention.—"I wish the little ones could go too," said Nancy, giving chubby Dot a hug.—"They would only be in the way," responded Maud, "and we couldn't take care of them."

"I wonder what mother will do all day without us, the house all in confusion, and she busy packing up—two cart-loads gone already."—The Dayton's were moving to a new home nearer the village.—"I hep mamma!" lisped Dolly, just as Mrs. Dayton entered the room with a troubled face, and said, "Maud, Nancy," I am so sorry to disappoint you, but one of you will have to stay home today."—A doleful "oh, why?" echoed through the chamber, and two dismayed girls stood aghast.—"I find I must go over and see to things at the new house; the men have already broken my little sewing chair all to pieces."—"What a shame!" cried Maud.—"And some one must stay with Dolly and Dot. I think it better be you, Maud, as Nancy remained home from the fair last week"—"O, dear! I can't,' exclaimed Maud, "why I have thought of nothing but this May-party for a month, and the girls say I am almost sure to be chosen Queen."—"But Nancy has anticipated it as much as you," while Dolly hummed,

"Im to be Queen of the May, mother,
I'm to be Queen of the May."

"Nobody would select a red-headed Queen," said Maud, glancing at her sister's ruddy locks. "Miss Felter's artist nephew from the city is here, and if he likes the tableau, she says he may put us all in a great picture. You would like to see me painted as the May Queen, wouldn't you mother?"—"I am not very anxious," but Mrs. Dayton could not refrain from smiling at her daughter's earnestness.—"Couldn't I take the children over to grandma's?" asked Nancy.—"No, dear; a note from her says she is in her room with another attack of rheumatism."—"Then perhaps I had better stay," sighed Nancy."—"Settle it between you," said Mrs. Dayton and hurried away."—I don't want to be selfish, and it's my turn," said Maud with a sob, as she began slowly to take off her pink ribbons.—"No, indeed," cried Nancy. "I am the one to stay. As you say, no one would think of me and my red head for Queen; and I shall be much happier thinking you are wearing the pretty crown."—But she wiped away a tear, as she had often done before, over her bright locks which everyone seemed to consider so ugly.—"Oh, Nancy, do you mean it! you are a darling," said Maud, throwing her arms around her neck. "And if you will take my place to-day, you may go everywhere else all summer."—"Of course I will."—So, ten minutes later, Maud went off beaming to the fête, leaving Nancy sitting rather disconsolate on the vine-covered porch.—"Poor Nanny, 'tould'nt do to party," chirped Dot, slipping her fat little hand into her sister's. "Dot so solly."—"Never mind, we'll have a May-party," said Nancy, springing up cheerfully, for she was a light-hearted little creature. "We'll take our lunch up to the grove."—This delighted the 'youngsters,' who shouted with glee, and quietly robbed the garden of every bud and blossom, that had ventured out so early in the season; while Nancy ran across the way and invited Dan, Molly, and Pete Berry; three poor little children, who rarely had any good times, and had never been to a party in their lives. "It will be much better than sulking in the house all day," she thought.—It was a thousand times better, and a very happy little procession half an hour later wended its way with many a hop, skip, and a jump, to the shady green wood back of the farm.—Nancy, still wearing her white dress and blue sash; Dan making quite a gallant looking prince, in a scarlet cape with a long white feather in his ragged straw hat; Dolly and Dot as maids of honor, bearing the flowers; and Molly and sturdy little Peter straggling on behind with the basket of lunch hastily packed.

"Here is the very spot," called Nancy, at a picturesque little dell, shaded by grand old forest trees, with a mossy mound in the center.—It was a new experience to the little Berrys, and they were wild with delight.—"I think elves and brownies must live here," said Nancy, as they spread the cloth on the soft grass. "I wish one would appear, and grant me a wish."—"What would it be?" asked Molly, looking longingly at the pile of sandwiches.—"A nice new rocking-chair for mother. Her's was broken to-day, and she can't afford to buy another now. She'll miss it so much. But lunch is ready, blow your horn Peter, and call the May fairies together."—Lustily Peter tooted on

the cow's horn hanging at his side. The children were soon enjoying the bread and meat, strawberry tarts, and fresh milk which Mrs. Dayton had left in the closet for her little flock. Nothing cared they for the ants and spiders that scudded across the cloth; but all was fun and merry cheer, and I doubt if the grand fête at Felter House was more jolly than this little amateur May-party in Fairy Dell.—"You, Nancy, must be our Queen," said all the children as they finished the last cake, and threw the crumbs to the birds.—"What! with my 'brick-top?'" and she laughingly shook her tawny mane.—"Yes, yes," and they dragged her toward the green throne, sprinkled over with bright spring blossoms, and placed a wreath of violets and snowdrops on her head. Dan and Peter then set up the May Pole, of a rough birch branch, wreathed with common flowers, but which the children considered beautiful. Then joining hands, all danced around, gaily singing a little song they had learned at school, slightly changed for this occasion:

"Hail! Nancy, Queen of May,
On this bright festal day!
Sweet flowers we'll bring,
Gay blossoms of spring,
To crown our Queen of May."

And a charming picture they made, this little rural court gathered about the sylvan throne, Prince Dan doffing his hat, with its sweeping plume, and chubby little maids of honor, kneeling on each side of their bright-faced Queen, who graciously extended her white hand for each to kiss.

And some one must have been admiring it, for, the quaint little ceremony ended, they were about to disperse for a game of romps when they were startled by a voice, "Stop! don't move!" and a young man in knickerbockers sprang suddenly from a bushy clump. "The court of the flower fays, I see!" he said pleasantly, politely removing his cap. "Pardon me if I have disturbed you, but you have no idea what a pretty tableau you made." The frightened little ones would have run away, but Nancy said, "Oh, sir, we were only having a little May-party among ourselves. If you want to see a real one, you must go down to the village."—"I should see nothing that would please me half so well as this; and if I have your majesty's gracious permission I would like to make a sketch of you and your court."—"Are you Miss Dorothy's nephew, the artist?" asked Nancy in surprise.—"The same. And so you have heard of me. Well! see; I'll give you this if you'll sit just as you are, one hour," and he held up a shining gold piece. Nancy gladly consented, and the little folk being bribed with sugar plums from the artist's capacious pocket, kept tolerably quiet, while the young man worked busily with palette, canvas and brush. At the end of an hour they were eager to be off.—"Give me another hour, fair May Queen," begged the artist, and she sat for him alone, while the children scattered though the wood.—"Another," he then implored, and not until the sun was red and low did he seem satisfied, then dropping three golden dollars into Nancy's lap, he held up the roughly finished sketch.—"Yes, it's me, sure enough!" said Nancy, slowly—"pug nose, carrot locks, and all! But oh! couldn't you paint it black, like Maud's?"—"What?" asked the artist.—"My—my hair!" stammered Nancy, blushing, "it is so, so homely."—"Why, child, you're dreaming! Your hair is a glory! the real Titian red, that is so rare. 'Tis the beauty of the whole picture! I would'nt care to paint it, had it been black."—Never was there a more perfect surprise. Was it possible that her despised hair, which every one teased her about, could win such praise! She gazed in mute astonishment at the young man as he lay back on the grass, and laughed aloud. "Am I the first to tell you of your greatest beauty!" he said, "the glorious hair, admired by the old masters! Well, go home and let the good country people know what red locks are worth."—"Mother will know, when she sits in that new rocking-chair," thought Nancy, as she tightly clasped the three gold pieces, and summoned her little company to their pleasant homeward walk.

She found Maud there before her, looking tired and cross. "You did not lose much," she said, "for is was stupid from beginning to end. Carrie Green was the Queen after all, while I was only a maid of honor. The artist never came, and I did not enjoy it at all."—"I am very sorry," said Mrs. Dayton, who entered in time to hear her daughter's words, "though I think the fault must have been in yourself, for I just met the Browns and they told me the whole fête was delightful. But how is it Nancy looks so bright?"—"Oh! I have had a lovely day," she said, and little Dolly and Dot shouted, "We have, too! we have, too!" Then she told about their impromptu May-party and the picture. "And queerest of all, mamma," she ended up with, "he liked my red hair, and really said it was beautiful."—"Artists see with clearer eyes than we do; but I do not wonder at his choice to-day," said Mrs. Dayton as she kissed the sweet rosy face, and led the way to the supper table.—The next week they moved into their new house, which was quite in order by May tenth, Mrs. Dayton's birthday. They celebrated it by a pleasant little house-warming.

The only gift mother received was a cozy, comfortable little rocking-chair, purchased with the "May Queen money," as Nancy called it. Mrs. Dayton declared it a great improvement on the old one she had sadly missed.....When autumn came the most admired picture on the Academy walls in New York was one entitled "An Amateur May-Party," in which was represented a bare-footed little urchin, disguised in a scarlet cape, doffing his hat before a fair little May Queen, with a sweet "flower face," shadowed by a mass of golden hair.

The Doctor's Talks.

The story that especially interested me when I was a youngster was called "Eyes and No Eyes." I don't recollect who wrote it, or should I know where to find it now. It told of two brothers, who, having to go on an errand some distance from home, each took a slightly different route. When they returned they gave an account of themselves. One boy came home hot, dusty and tired; he had been annoyed by gnats, been chased by a wasp, and the way was so long and dull that he had a miserable time. The other boy had found the walk short, there was so much to see. He had watched a bird build its nest; saw a squirrel and knew where its hole was, and the insects and their ways gave him so much to look at and the time passed so rapidly that he was surprised when he found he was at his journey's end. There are just such boys now. If there is one thing that I have especially tried to teach you in my "Talks" it is to "use your eyes." There are some grown people who find life in the country very dull, "nothing going on," "no excitement," "nothing to see." I hope none of our young people think so. "Life in the country dull!" I don't see how it can be to any boy or girl who has

THE PROPER OUTFIT FOR THE COUNTRY.

"What is this outfit?" It is very valuable, indeed if lost no money will buy another. It consists of two parts, a good pair of eyes, and knowing how to use them. Many who have eyes are practically blind. They walk about every day, among the most wonderful things, and are like the boy in the story who had only seen the road-dust and the gnats. I once heard some one speak to Agassiz about the great labor attending some of his observations. "Oh," said the great naturalist, "it is all there, and I have only to look and see it, that is all." Natural objects do not, like some people, show everything on the surface; there are very few that will not exhibit something more upon close examination. The Barberry bush grows wild in many places, and I suppose that most of you know it. Late this month, or early next, its slender clusters of yellow flowers will be hanging from the branches. Examine one of these little flowers. If you look into it, it will appear as in figure 1, which is much larger than real. You see that there is a thing in the center, and six little narrow affairs, with knobs at their ends, lay around, with their ends pointing towards the edges of the flower. Now take a fine sliver, a bit of broom straw, or even a pin, and gently touch one of these six knobbed affairs near its lower part and see what happens. Up it jumps, and stands erect! Each one will do the same. Some of the older among you will recollect that in some former Talk I told you about other flowers, and that the central portion was the pistil, that it would ripen into a fruit with seeds, but not before it was touched with a fine dust, called pollen. That this pollen was furnished by the stamens—those six affairs whose quiet you disturbed—not by the whole stamen, but by the knob, or swollen portion, at the end, called an anther. These stamens rise up, touch the pistil in the centre of the flower and give it some pollen.



Fig. 1.—BARBERRY FLOWER.

WHAT MAKES IT MOVE AS IF ALIVE?

It is alive: all plants are alive, only all do not show it by a quick movement, as this does. We do not know just why this moves. My object was not so much to talk about this motion as to show you that even this little barberry flower was worth looking at.



Fig. 2.—FLOWER CLUSTER OF THE DOGWOOD.

THE FLOWERING DOGWOOD

will soon be in bloom—a tall shrub which is often a mass of white. It is quite common, more so than the Barberry in States further West. If I were to ask "Do you know it?" very likely you would say: "Oh yes, very well; a fine tall bush with great white flowers." Were I to reply: "No doubt you know the Flowering Dogwood very well; but its flowers are neither 'great' nor 'white,'" you would be puzzled and might offer to send me a specimen to show you were right. To save you that trouble I have an engraving at hand (figure 2) which will allow you to see your mistake. The real flowers are in a cluster in the center, a dozen or so, small,

greenish-yellow, and four petalled. But "what are these four large white showy petals?" They are not petals, for those you know belong to the flower, though they are petal-like. Each one is a bract, a peculiar form of a leaf; all together they form an involucre. "What is its use?" One use is this: the flower-buds of the shrub are formed the summer before, and in the fall you may see them, like little caskets, holding the tiny buds of the real flowers, which are closely wrapped up in this involucre, one use of which seems to be to protect the real flower buds during the winter. Later, when open they may be of use to the flowers in some way, which we do not yet know. I have thus shown you that here are two

VERY COMMON PLANTS WORTH EXAMINING,

and you will meet with such on every hand—not plants only, but insects, even the most destructive, have a story to tell as have animals of all kinds; and the rocks often are the records of the world's early history. With a good pair of eyes, and the wish to use them, the country need never be dull, thinks THE DOCTOR.

About the Weed Lists.

When I offered prizes for the longest lists of the weeds found on your farms, I had no idea of the great amount of labor it would require in order to decide upon the prizes. I do not mind the labor, though I do regret that it has made an earlier decision impossible. The lists were made out in various forms. Some were in columns and numbered; in others the weeds were classed alphabetically, and in a few they were arranged according to their botanical families. In some lists the names ran on one after another, making counting very difficult. Some lists were in pencil, and others in red ink, though the majority were properly written in black ink. With five hundred and eighteen of these lists to examine, you may imagine that it was a time-taking job. I had a friend to help me, and it took us two days and one evening to open, count and record the different lists. After this was done, we found that there were ninety-five lists, with over one hundred names in each, some with over two hundred names. As the longest lists would be found among these, the examination and comparison of these became a slow and difficult work, especially as some lists contain many that cannot be considered weeds, but merely wild plants never found in cultivated grounds. At the time of writing this, I have not been able to complete the comparison of the ninety-five lists, but will give the result in another part of the paper, which is printed later. I would thank all those who have sent lists, even the smallest; my only regret is, that I cannot give a prize to every one. Whenever I have offered a prize to be competed for, I have almost regretted having done so, at the thought of the many who must be disappointed. When you take part in a competition of this kind, you should not set your hopes too strongly on winning. In the case of the weed lists, the looking after the weeds, learning the names and recording them, has been useful, even if the large amount of labor did not bring a prize. "THE DOCTOR."



ACROSTIC PUZZLE FOR MAY, AND A DECORATION DAY REBUS.—Arrange the letters in each flower in such a way as to make a word; arrange the six words so that the initials will give the name of a flower.—The answer to the Illustrated Rebus is an altered selection from Robert Herrick's Poems.

Our Hen and Quails.—Little Girl's Letter.

Our hen we call Minnie. She is very much like some girls I know. If they have a problem in arithmetic, they always get some one else to work it out for them. If they want a pair of mittens to wear to school, they always manage to have somebody else knit them as a present. Our hen has the same knack of doing things. We never knew her to make a nest for herself, but she always deposits her eggs in some other hen's nest; and we suppose it was in this way she got her little quails. We missed her for about two weeks and were afraid something had caught her, when one day what should we see but Minnie coming through the yard with eleven little quails, the proudest mother any one ever saw!

We were all delighted to see her alive, and with so many funny chickens. Well, Minnie, with her constant, watchful care, raised them all. When almost grown, mamma had a quilting, and a house full of ladies came. When they were all seated around the dinner table, something frightened the quails, and what do you think they did? Why they just rose and flew in and lit right in the middle of the table. And such a confusion, jumping up, running round and screaming among the ladies! They frightened the quails almost to death, poor little things, and they were glad to fly back to their mother, and Minnie was glad to get them close to her. The hen and quails always will fly into the house every time anything frightens them, and we have had many amusing incidents occur in this way. We now have a large flock in the orchard. They will come close to the door and whistle, and are as tame as chickens, because we never allow any one to molest them. LILY WING.

A Boy's Poultry Keeping.

"A. C. S.," Williamsport, Pa., tells us "How I take care of my chickens."—He does not state his age, but we judge from his writing that he is quite young. At any rate, his rules for management are good ones, and were they followed by older persons, they would find it profitable. He says: "First—I feed my fowls every morning and evening. Second—I gather my eggs every evening. Third—I keep the coop clean. Fourth—I don't feed oats. Fifth—I change their food almost every week. Sixth—I have the nests clean. Seventh—I remove all rubbish from the yard. Eighth—I never drive or scare them when laying. Ninth—I do not let them steal their nests. With six fowls, I get two and three eggs a day, and in summer more."

Which is the Top of an Apple?

Every now and then persons have a discussion as to which end of an apple is the top, and as they cannot decide the point, agree to refer it to the *American Agriculturist*. Everyone who has gathered an apple knows that the stem-end is uppermost as the fruit hangs on the tree, and many claim on this account that the stem-end is the top of the apple. If you young people wish to decide this point for yourselves, you must look at the fruit while it is very young, soon after the blossoms fall away. Apple blossoms, how beautiful they are as they cover the trees in such profusion! Besides admiring them in a mass, it will be well for you to examine some of them closely and learn about

THE BEGINNING OF THE APPLE.

You, of course, know that the showy part of the apple blossom is the corolla, it has five petals, or flower leaves (*A*); outside of these are five narrow, leafy parts, the sepals, which together are the calyx. As you look into the flower you see five slender pistils, and on the edge of the flower-cup a great many stamens. In many flowers you know that these parts are all very distinct and stand upon the top of the flower-stalk, but here they all seem to be upon the top of a very small apple. If you cut the blossom in two lengthwise, you will find it to appear as at *B* in the engraving. You will see in the centre the lower parts of the pistils, the ovaries, and these are surrounded by the lower part of the calyx, which adheres to them. The tiny green apple at the bottom of the blossom is mainly the enlarged calyx. When the blossoms fall away, there is no difficulty in seeing which is the top of the apple; when it is very young, the stem end is evidently the bottom, and the opposite, or calyx end, is the top. As the young apple grows, it becomes too heavy for the stem to hold it in an upright position, so it soon falls over, and afterwards hangs top-end down. If you cut open a young apple now and then, as the fruit is growing, you will see that the seeds are formed, and that they are being enclosed in tough parchment-like cases. These which you know so well in the core of the ripe apple, are the real fruit, that is, the ripened ovary. They are surrounded by the lower part of the calyx, which is attached to them; this grows very rapidly, and in time ripens to form the great mass of the apple. The portion then, which we eat in the apple is mainly the ripened calyx, and the core, which we throw away, is what in the botanical definition is the true fruit of the apple tree.



A CLUSTER OF APPLE BLOSSOMS WITH SECTION OF A FLOWER.
Engraved for the American Agriculturist.

The Banyan Tree.

One of our young friends asked us: "Is not the Banyan tree the most wonderful tree in the world?" It is a wonderful tree—indeed quite as much so as a stalk of Indian corn. The corn-stalk has the peculiar growth which makes the Banyan celebrated. The Banyan tree is a native of India and other parts of Asia, and is a kind of fig, with fruit as small as a cherry, and not pleasant to eat. The branches produce roots, which at first swing in the air, but on reaching the earth they throw out



A BANYAN TREE.—*Engraved for the American Agriculturist.*

smaller roots that become fixed in the ground. These upright roots grow large and become like trunks. The broad tree-top is thus supported by many pillars. Indeed, the original trunk often decays, leaving the top propped up by these root-trunks. Three hundred and fifty of them have been counted on one tree, and a tree is mentioned so large, that its wide top will shade seven thousand persons!

Mr. Dyckman's Camelopard.

The Dyckman family would have lead a happy, peaceful life on their large and valuable farm, but for Uncle "Capt. John's" fondness for birds and animals, which was so great, that on every returning voyage he brought some new, strange creature as a present for Mrs. Dyckman. She, and her neighbors, too, were however saved much annoyance by the usual early death of these unacclimated animals. Once, a monkey persisted in living, and was up to all sorts of tricks, chasing the children, tearing their clothes, frightening the mother when it broke its chain, as it often ingeniously did, until it was sold to a menagerie man. Then quiet reigned for a season; but the Captain soon came with a new pet, a veritable camelopard. Mrs. D. could hardly say "how do you do, Captain John," but he shook her hand in the heartiest manner, lovingly pinched little Johnny's cheek, kissed wee Dora, and tossed the baby almost to the ceiling. The children were wild with delight, and eagerly inquired where the new pet came from.—"Why, from Africa, of course," said Master Richard, grandly, who, inheriting Uncle John's love of animals, had read Wood's Natural History. And he went on reassuringly, "the camelopard or giraffe is very gentle, though sometimes when provoked will kick with his hind legs," looking warningly at little John who was sidling up to the tall pet with a stick in his hand. Mrs. D. was less disturbed on thinking that an animal sixteen feet high could not come into the house to trouble her. Captain John, always in a hurry, soon departed on another long voyage, after fully instructing his brother how to care for the camelopard.

The next day Mr. Dyckman exclaimed while at dinner, "I wish John had left that thing in Africa where it belonged. Why, the beast got out this morning, and just about ruined my young fruit trees by eating off the leaves and branches; and then it got at neighbor McLaren's horse-chestnuts, and when our man Jerry went after it, it gave him such a kick that he'll never go near it again,"—"That's just what the book says. If provoked he will sometimes kick," chimed in Richard, triumphant at this illustration of the truth of his researches.—"But that won't make Jerry feel any better," replied Mr. D.—"And I hope you've tied him fast now," said Mrs. D.—"Oh, yes, as fast as any one can tie a neck so long, that you don't know what part to hitch to that he'll not slip out of somehow."—The children were all delighted, and Richard read from his hook, "the flesh of the camelopard is considered quite delicate and tender," when Mr. D. broke in, "we might cook and eat him; what say you, wife?"—She was replying, "I should feel as if eating a horse"; but her voice was drowned by the children's "noes," thinking their father in earnest.—"Why didn't you tell Uncle John you didn't want it?" continued mother.—"Oh, I didn't want to hurt his feelings when he gives us so many nice presents. You must never look a gift camelopard in the mouth," he responded, and the children laughed.

That very afternoon as Mrs. D. sat near her open chamber window, sewing a button on her shoe, the tall pet peered in right under her nose, and throwing the shoe in her fright, she shivered a fine mirror. She had always held the superstitious notion that to break a looking-glass was a bad omen, and she went down stairs weeping, just as Jerry came limping in with, "where's Meester Deeckman; sure that haythen haste"—"camelopard or giraffe," chimed in Richard.—"Karmilipard thin! I'm thinking the name and the baste is the match of old Nick. Why jest as I was puttin the pizen green on the pertater vine, he kim over the fence to give me anither kick, and I sot the pail in the crook of the apple tree and run away, niver dramin he'd touch it. But he did, and jist come outside and hear him groanin."—It was too true. The camelopard had come all the way from Africa to die like a common potato bug. The children were inconsolable. Mrs. D., though sorrowful at the animal's sufferings, felt relieved when it was dead. Though Richard assured his father by his book that "the skin was very valuable," he was hastily buried in the meadow beyond the brook. At the tea table Richard broke in, "the camelopard was so called because it resembles both the camel and panther or pard...." but was interrupted by his father with, "I think I know all I want to about it. If this one should have lived, I should have been bankrupt in a month."—Probably he wrote something of the kind to Captain John, for no more presents of wild animals came to the Dyckman farm.—I will only add for the benefit of superstitious people that despite the broken looking-glass, the camelopard's death has been the only one in the Dyckman family up to this time.

Corals not Insects.

Miss "S. A. W." asks, "If coral insects make so much coral as to form islands, why is coral jewelry so costly?" There are many different kinds of coral, but none of them are built by insects. The "coral insect," which was talked about by the older writers, does not exist. Coral is, however, produced by animals, but of a very low order, budding and branching so much like plants, that they were at one time claimed to be plants rather than animals. They belong to the *Zoophytes* (a word meaning an animal that grows like a plant). Their bodies are very soft, and they surround themselves with a strong covering, much like marble, which they get from the sea water. The corals which form the islands are usually white, and of course are large kinds. Some are rounded and others branching, and when recent they contain the living animal or animals, which put out their feelers from the numerous openings. The coral used for jewelry is a very solid red kind, found mainly in the Mediterranean Sea. It is rarely more than a foot long, and seldom larger than the little finger. The engraving of a branch of this, shows the animals spreading their feelers from the pores in the sides. In the coral fisheries, a kind of drag is used to break off the coral, and bring it into the boats. Some of this is found in the Persian Gulf, and in the Red Sea. The tint in different localities varies from a light-salmon, to rose-pink, and dark-red. A black variety is also found. Naples is the principal place for the manufacture of coral ornaments, and a large number of people find employment in working up the material into necklaces pins, ear-rings, bracelets, etc. The work done by the coral animals in building up reefs and even large islands, is truly wonderful. Slowly, very

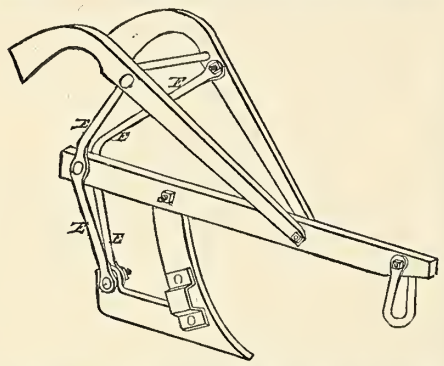


A BRANCH OF PRECIOUS CORAL.

slowly, by their united labors, the mass is built up. At last a small island appears, and in time plants of some kinds show themselves. "Where do the seeds come from?" Most likely they are brought by the birds. It has been found that water-fowl carry a great many minute seeds from place to space in the mud that adheres to their feet.

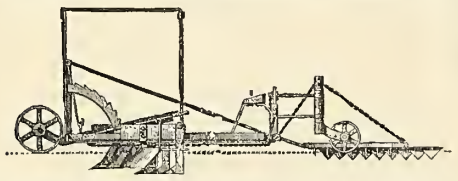
OUR RECORD
OF
Recent Agricultural Inventions.

Plow.—J. T. Millen, Thomasville, Georgia. Jan. 22; No. 292,343.—The inventor seeks to avoid the clogging of the brace, which usually supports the plow standard, while bracing the standard thoroughly and preserving the old-fashioned connection of the handles



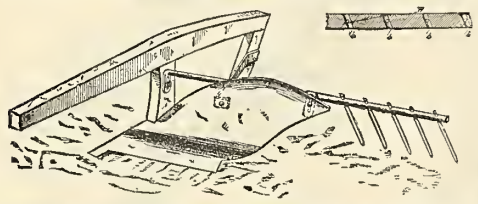
with the beam. The standard and heel-piece are cast in one, and carry a clip-socket for the shovel. The heel-piece, the beam and the handles are fastened together by the bent braces, *e*, *e*, which are bolted to the opposite sides of the parts connected so as to support and brace them firmly. The improvement is applicable to any plow having a heel and standard connection for shovel cultivator or mold-board.

Gang-Plow.—H. M. Cormack, Malden, Mass. Jan. 1; No. 291,156.—The figure shows a sectional elevation from front to back through the middle of this improved gang-plow. The improvements claimed consist in certain novel features of construction and arrangement of parts. They relate chiefly to the means em-



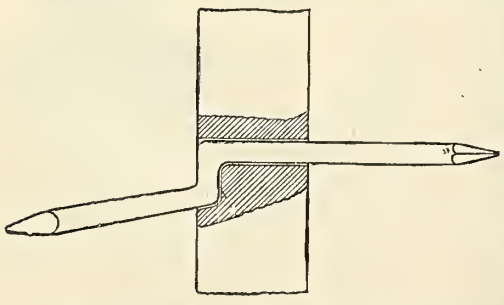
ployed for raising and lowering the plows, for adjusting the plows lengthwise along the auxiliary frames, so that the two gangs of plows may be made to turn their furrows in the same or in opposite directions, for regulating the width and depth of the furrow, and for handling the harrow. This plow is intended for use with steam power.

Attachment for Plows.—V. Wood, Peru, Ind. Jan. 22; No. 292,272.—The inventor seeks to improve the construction of harrow attachments to plows, to obtain greater lightness and efficiency. The bar has



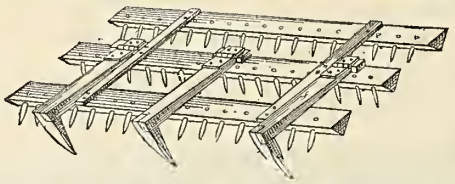
oblique tooth-sockets, and is attached to the plow standard and the mold-board, so as to have a vertical adjustment. The teeth are independently adjustable, and are held in position by set-screws or otherwise.

Harrow.—A. C. Evans, Springfield, Ohio. Jan. 1; No. 291,174.—By bending the harrow-tooth as shown in



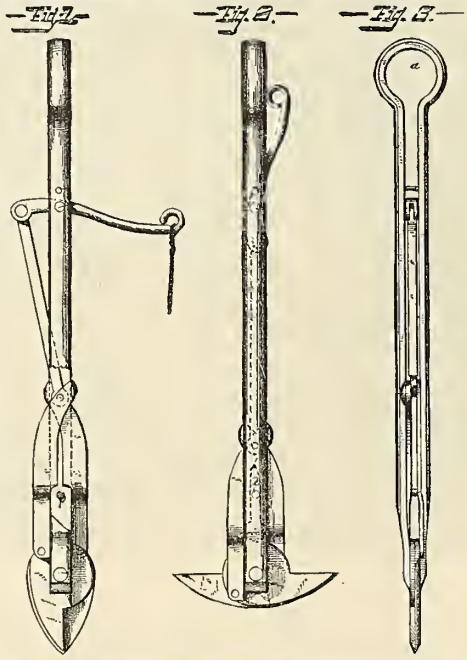
the engraving, Mr. Evans is able to make a reversible harrow, straight-toothed on one side, and inclined-toothed on the other, of extremely simple construction. The manner of inserting the tooth in the beam, is part of the invention.

Harrow.—S. Shoemaker, Nokomis, Ill. Jan. 1; No. 291,414.—This is a combined harrow and corn-marker. The drag-bars are three-cornered, smooth in



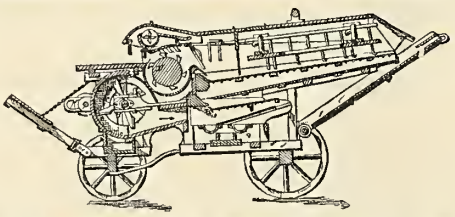
front and toothed behind, and rigidly connected by cross-bars. The teeth of the middle beam are inclined forward, the others backward. The corn-markers are flexibly attached to the middle bar.

Hay-Fork.—Henry Stahl, Cherry Mills, Pa., Jan. 22.; No. 292,378.—The construction of this fork is clear-



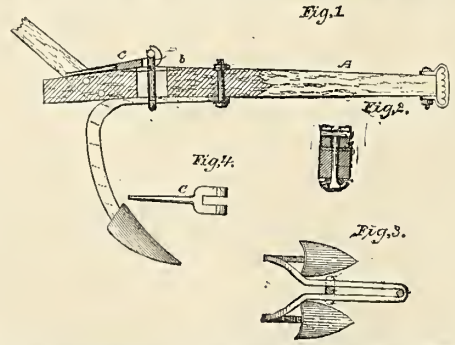
ly shown in the engravings. The inventor seems to have succeeded in his purpose to make a light, strong, and efficient yet inexpensive fork.

Thrashing Machine.—W. H. & J. Butterworth, Jr., Trenton, N. J., Jan. 29; No. 292,731.—The inventors claim a considerable number of improvements



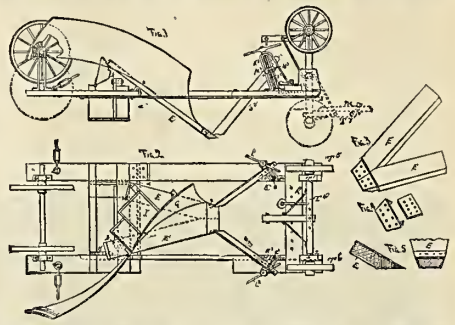
in the machines known as vibrating thrashers. A section of an improved machine is shown in the engraving; the patented features are of such a nature that a brief description of them is impossible.

Plow.—A. A. Roberts, Quitman, Arkansas. Jan. 1; No. 291,087. The improvement lies in the means for attaching the plow to the frame, which consist



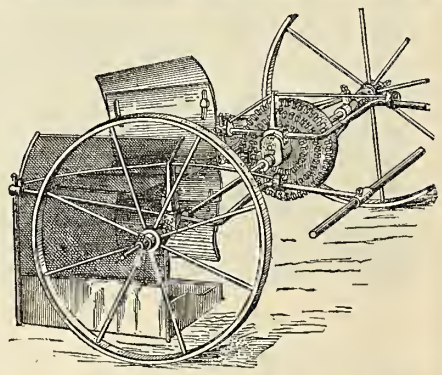
in the combination of the slotted beam *a*, the forked and pivoted cam-lever *c*, and the clamping device *b*, as shown in the engravings. The improvement is specially applicable to cultivator plows.

Dust Exhauster and Conveyor for Thrashing Machines.—David Logan, Hartstown, Pa., Jan. 29, 1884; No. 292,498.—The construction of this device is clearly shown in the engravings. fig. 1



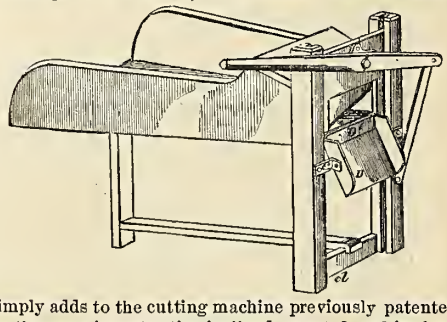
being a perspective view of the casing of a separator with the invention attached, fig. 2, a section of the same. In operation the dust is exhausted from the closet *b*, by the suction of the rotary fan in the fan-chamber *h*, passing through the elastic tubes *o*, and out through the pipes *s* and the conveyor tube, *t*. The direction of the discharge is determined by the direction of the rotation of the fan, and that is governed by the twist of the belt.

Machine for Gathering Insects from Plants.—Ferdenand Wiskocil, Prairie Du Sac, Wis., Jan. 15, 1884; No 292,083..—This machine is specially adapted for the work of collecting potato beetles. As the machine is propelled the crown-wheel revolves, its cogs engaging a pinion on the fan shaft, causing the fan



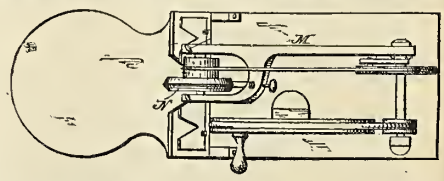
to revolve and strike the insects off from the plants into the box, which may contain poison for killing them. The screen prevents the insects from being thrown beyond the box. The wheels and other parts of the machine are adjustable to suit the work in hand—the width of the rows, the height of the plants and so on.

Straw Cutter.—J. N. Slaughtenhaupt, Chambersburg, Pa., Jan. 22.; No. 292,263.—This invention



simply adds to the cutting machine previously patented by the same inventor the inclined spout *d*, and its fastenings as shown.

Machine for Sharpening Mowing Machine Knives.—Spencer McCay, Topeka, Kan., Jan. 22, 1884; No. 292,244.—The claims of this patent cover the mode of hanging the grinding wheel *n*, on the swinging frame *m*, so that the wheel can he



moved up and down, and from side to side to follow the bevels of the teeth; together with the means for turning and guiding the wheel, and for rigidly holding the knives to be ground. The engraving shows a plain view of the machine.

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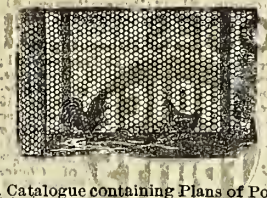
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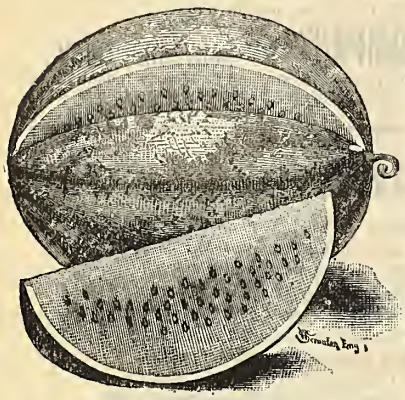
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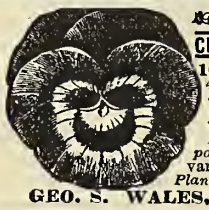


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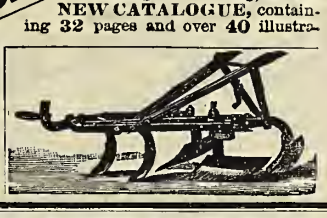
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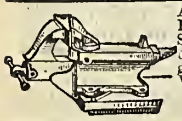


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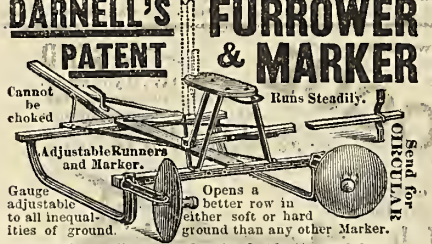
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"Take pleasure in recommending it. It does the business; is well made and will last for years." *J. S. Collins, Moorestown, N. J.*

"It far exceeds my expectations. If the real merits of this cheap implement were known to potato growers alone, the sales would be immense." *E. L. Coy, Pres. Wash. Co. (N. Y.) Agr. Society*

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18,000 Carpenters and Farmers

now use our **Late Make Filers** to file saws, so they will cut **faster** than ever. **Teeth** all of **equal size**, Pitch and Bevel. Single one sent free on receipt of $2.50, where no Dealer keeps them for sale. A discount to Dealers or others wishing to sell. For Illustrated Circulars, *Testimonials* from persons who use them, etc., address
E. ROTH & BRO., New Oxford, Penna.
Post-Office Money Orders make payable at Gettysburg, Pa.

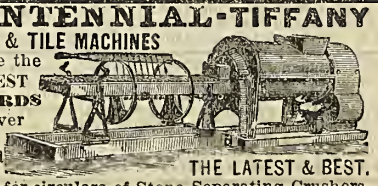
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197 WATER STREET, N. Y.

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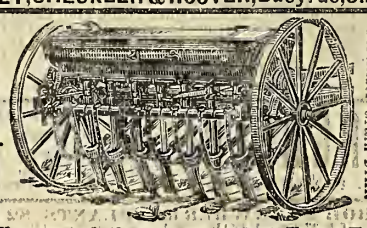
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Send for circulars of Stone Separating Crushers, Engines and full Tile Factory outfits to
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The Pennsylvania Force-Feed Fertilizer Grain Drill.



Warranted the most perfect Force-Feed Fertilizer Drill in existence. Send for circular, A. B. FARQUHAR, York, Pa.

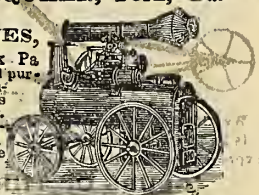
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Farquhar's Standard Engines & Saw Mills.



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STEAM ENGINES,
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Cheapest and best for all purposes—simple, strong and durable, SAW, GRIST MILLS AND MACHINERY generally. Inquiries promptly answered. Send for Illustrated Catalogue.



Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world.

Fig. 1. Fig. 1. is Engine in use.

Fig. 2 ready for use.



Boilers to order best charcoal iron, full capacity.

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Fig. 2.

THE FARQUHAR SEPARATOR
(Warranted.)

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Lightest draft and most simple, economical and perfect in use. Wastes no grain cleans it ready for market.

Steam Engines, Horse Powers and Threshers, Saw Mills, Clover Hullers, Cutting Boxes, Feed Mills, Pulleys, Shafting, &c.

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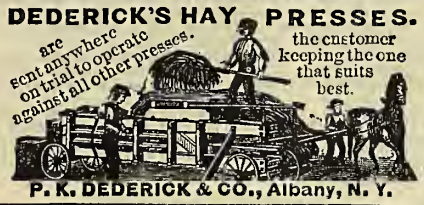
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CHAS. SWIFT, MANUFACTURER.
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DOUBLE HARPOON HORSE HAY-FORK!

BEST in the world. Descriptive catalogue free. **PENNOCK MANUF'G CO.,** Kennett Square, Chester Co., Pa.

DEDERICK'S HAY PRESSES.

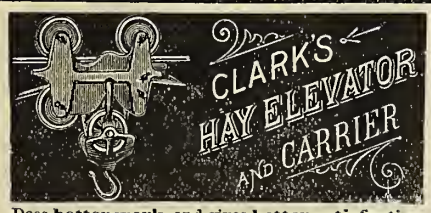


P. K. DEDERICK & CO., Albany, N. Y.

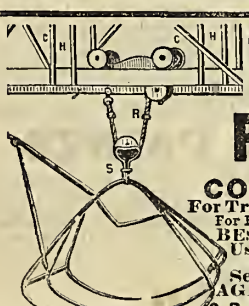
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Consisting of Grappling Fork, Carrier, Pulleys, etc. This Fork, Car, etc., has been sold throughout the U. S. and Canada with the greatest success. It has won its way amid the greatest competition of Forks and Carriers, and is without doubt the best hay and grain unloader made. Every farmer should send for a circular now. E. V. R. GARDNER & Co., Westtown, Orange Co., N. Y.



Does **better work,** and gives **better satisfaction** than any in use. **Sent on trial** to responsible farmers. **Large Carriers** for handling Coal, Stone, Iron and Merchandise, a specialty. For circulars, address **W. I. SCOTT, Bridgewater, Oneida Co., N. Y.**

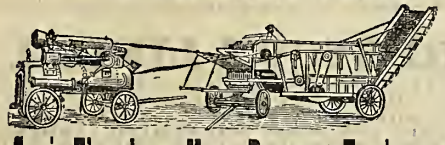


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For Track, Rope or Rod
For BARNS or STACKING.
BEST Combination.
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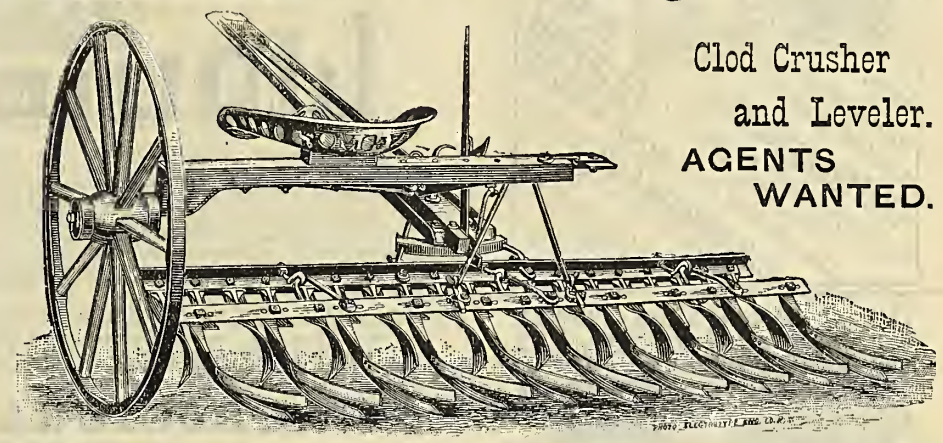


Grain Threshers, Horse Powers & Engines.

Highest prize awarded these machines at the New York State Agricultural Society's latest trial, over a large number competing.
Ample warranty and opportunity for trial given. For full particulars address

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ST. JOHNSVILLE, MONTGOMERY CO., N. Y.

"ACME" Pulverizing Harrow,



Clod Crusher and Leveler.
AGENTS WANTED.

The **"ACME"** subjects the soil to the action of a **Steel Crusher** and **Leveler,** and to the **Cutting, Lifting, Turning** process of *double gangs* of **CAST STEEL COULTERS,** the peculiar shape and arrangement of which give **immense cutting power.** Thus the three operations of **crushing** lumps, **leveling** off the ground and thoroughly **pulverizing** the soil are **performed at the same time.** The **entire absence of Spikes or Spring Teeth** avoids pulling up rubbish. It is **especially adapted** to inverted sod and hard clay, where other Harrows utterly fail; works perfectly on light soil, and is the only Harrow that **cuts over the entire surface** of the ground.

We make a Variety of Sizes working from 4 to 15 Feet Wide.

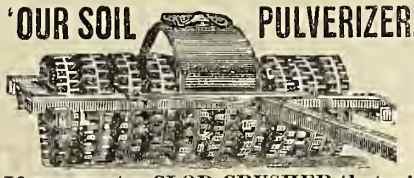
DO NOT BE DECEIVED. **Don't let your dealer palm off a base imitation or some inferior tool on you under the assurance that it is something better, but SATISFY YOURSELF BY ORDERING AN "ACME" ON TRIAL. We will send the double gang Acme to any responsible farmer in the United States on trial, and if it does not suit, you may send it back, we paying return freight charges. We don't ask for pay until you have tried it on your own farm.**

SEND FOR PAMPHLET CONTAINING THOUSANDS OF TESTIMONIALS FROM 46 DIFFERENT STATES AND TERRITORIES.

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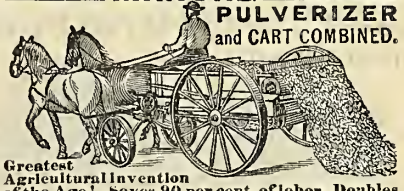
'OUR SOIL PULVERIZER.'



If you want a **CLOD CRUSHER** that will last you a lifetime, without getting out of order, and that will do **BETTER WORK** with **ONE-HALF** the labor and lighter draft than any other Implement for the purpose, send for prices and description to

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Greatest Agricultural Invention of the Age! Saves 90 per cent. of labor, Doubles the value of the Manure. Spreads evenly all kinds of manure, broadcast or in drill, in one-tenth time required by hand. Illustrated Catalogues free.
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WINTER IS THE TIME

TO PUT UP YOUR TRACKS FOR

HAY CONVEYORS,

while the barns are full. You can then do the work yourself without the help of a carpenter, as you require no scaffolding. For circulars and prices of the best Hay Conveyors, for either straight or curved track, address

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THE S. R. NYE IMPROVED BAY STATE RAKE

TRY IT! and you will use no other.

COSTS LESS for REPAIRS. Circulars **free.**

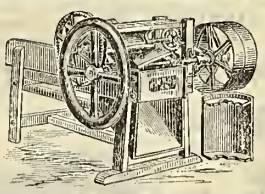


ITS LEADING MERITS ARE

That it will not scratch your ground. Needs no adjustment, but will rake clean on all surfaces. Will not scatter at the ends. Will form a windrow in heavy or green grass. Is easily held down while at work. Will dump easily. Will ride easily. Will turn easily. Will make less noise, and is the most expensively built and handsomest Rake in the market.

BELCHER & TAYLOR AGR'L TOOL CO.
CHICOPEE FALLS, MASS.

THE ROSS ENSILAGE & FODDER CUTTERS.



These Cutters are guaranteed to be the best in the world. Any one wishing to buy a cutter, is at liberty to try one of ours in competition with any other make in the world before buying, and if it does not prove superior in every way, it may be returned. We guarantee perfect satisfaction or **no sale.** Please send for our Illustrated Circular before you buy a Cutter. **E. W. ROSS & CO.,**
☞Mention this paper. **Fulton, N. Y.**

WANTED.

A transportable railroad, 5,400 yards long, with cars for the transport of sugar-cane, wood and corn.

Address offers and catalogues to **J. O., 6129,** care of Rudolf Mosse, at Berlin, S. W. (Germany).

Hilling Attachment for Cultivators.



One of the best and cheapest Hilling Attachments ever devised for attaching to any wood beam Cultivator. The wings are made of good quality crucible steel, and can be expanded from 11 inches to 24 inches in width, so that it will hoe crops planted 2 feet to 3½ feet apart. Send for price list and terms to agents.

Price of Hiller Head with bolt, $2.50. Address
S. ADAMS & SON, ROME, N. Y.



1884. THE NOISELESS NEW CLIPPER!

1845. DURABLE LIGHT DRAFT The Triumph Reapers CLIPPER MOWER

One lever raises or lowers both sides of platform at once without stopping the team.

Center-Cut SEYMOUR Address BROCKPORT New York.

D.S. MORGAN & CO. CHICAGO, ILL. or TOLEDO, O.

Good Agents Wanted in unoccupied territory. Send for Circulars.

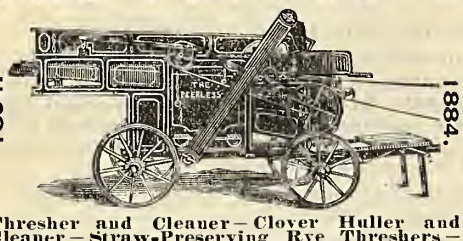
THE UNION HORSE-POWER

Has the Largest Track Wheels. DOUBLE GEARED. No Rods, Chilled Bearings and LEVEL TREAD



Union Thresher Separator and Cleaner Premium Farm Grist Mill, Feed Cutters, etc. Write for Descriptive Catalogue FREE. W. L. BOYER & BRO., Philadelphia, Pa.

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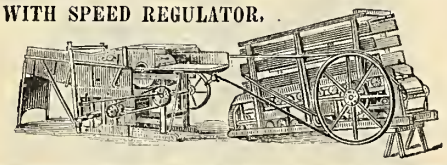


Thresher and Cleaner—Clover Huller and Cleaner—Straw-Preserving Rye Threshers—Railway and Lever Powers—The Howland Feed Mill—The Aspinwall Potato Planter, and Digger. Our machines are guaranteed to work well, and have received the highest testimonials and cannot be excelled. B. GILL & SON, Trenton Agricultural Works, Trenton, N. J.

HEEBNER'S PATENT

Level Tread Horse Power

WITH SPEED REGULATOR.



Heebner's Improved Little Giant Threshing Machine.

No other Power is as powerful and easy for the horses. The Level Lags and Speed Regulator are the most valuable improvements ever made in horse powers. See that you get Heebner's, any other with level lags will be an infringement upon our patents.

The Little Giant has more good points than any other Thresher. None can do work as fast, nor any better, and none are better made. Union Feed Cutter, Drag and Circular Saws, etc. Send for Illustrated Catalogue.

HEEBNER & SONS, Lansdale, Pa.

The Westinghouse



THRESHING MACHINES,

Engines, Saw-Mills & Horse Powers.

Grain Threshers, unequalled in capacity for separating and cleaning.

Combined Grain and Clover Threshers, fully equal to regular grain machines on grain, and a genuine Clover Huller in addition.

Two Speed Traction and Plain Engines 6, 10, and 15 Horse Power, positively the most desirable for Lightness, Economy, Power and Safety. Boiler has horizontal tubes, and is therefore free from the objectionable features of vertical boilers.

Horse Powers, both Lever and Endless Chain. All sizes. Send for catalogue. Address

THE WESTINGHOUSE CO., Schenectady, N. Y.

H. W. JOHNS'

TRADE MARK ASBESTOS

LIQUID PAINTS

Our liquid paints *are composed exclusively of the best and purest materials combined on different principles from any other Liquid or Mixed Paints.* They have been thoroughly tested in nearly all parts of the world, and have been found to withstaud the severest tests of elimatic changes, sea-air, and other trying exposures where the best white lead has failed, and the universal testimony of those who have used them is sufficient proof of our claims that they are in every respect *strictly reliable and first-class paints* of a *higher grade* than have ever before been offered to the public for structural purposes, either in "paste" or liquid form, and second to none in richness and permauency of color, beauty of finish, durability, uniformity, and all characteristics which are requisite to form a perfect ornamental protective covering.

None but the *purest* linseed oil and the best pigmeuts known enter into the composition of these paints, and they contain no water, alkalies, benzine, or other deleterious or useless adulterations; we do not, therefore, compete in prices with the cheap paints with which the market is flooded, and which are composed largely of water and other inexpensive ingredients.

Our paints are sold by U. S. Standard Gallon measure (231 *cubic inches*); *i. e., our packages contain from* 8 *to* 12 *per cent. more paint than is usually sold for the same quantity, and they weigh from* 10 *to* 20 *per cent. more to the gallon than any others in the market.* ONE GALLON WILL COVER FROM 225 TO 250 SQUARE FEET, TWO COATS.

We manufacture forty-eight shades of "body" and trimming colors, and also make Standard and Light Greens, Light and Dark Blues, Reds, Black, etc.; samples of which will be supplied on application.

We will send free by mail our pamphlet

"STRUCTURAL DECORATION,"

containing views of many prominent buildings and other structures on which these paints have been used and the colors employed, and which will assist consumers in selecting shades and colors for the satisfactory decoration of their buildings,

WHAT PRACTICAL PAINTERS

and others say:—

Portsmouth, N. H., Dec. 9, 1880.

Gentlemen: Enclosed find check for settlement of our account in full. We here desire to express our entire satisfaction with all the goods received from your house, they being in every particular up to the standard, both as to *your claims* and *our* requirements. W. J. SAMPSON, House, Ship, and Ornamental Painters.

Cohocton, N. Y., May 24, 1882.

Dear Sirs: The Paint came to hand, and my painter says It is the best he ever saw—spreads very fine; one coat completely covers all traces of the wood, and *equals two coats* of other kinds.

Please ship the following as before * * *.

Yours truly, THOMAS WARNER.

Friars Point, Miss., June 6, 1879.

Dear Sir: Three or four years ago I purchased a barrel of your Asbestos Paint, with which I covered a store-house. The result has been satisfactory. I am now buildiug a house more than ordinarily costly for this locality, and would like you to snip me one barrel, 40 or 50 gallons, as per shipping directions enclosed. Yours, etc., J. L. ALCORN, (United States Senator).

Auburn, N. Y., March 1, 1878.

Dear Sirs: In answer to your inquiry as to how we like your Paint, we are more than entirely satisfied with it. We are large users of paint, and of all that we have ever used are satisfied yours is far superior; it is put on with less labor, covers better, flows more easily, has a better body, aud, as far as our experience goes, will stand the weather better than any other paint we know of. Your Roof Paint is unsurpassed. We used one coat on a tin roof, and to day it looks as fresh and the color is as bright as when first applied. Respectfully yours, JOSIAH BARBER & SONS, Manufacturers of Woolen Goods and Carpetings.

Andes, N. Y., Nov. 23, 1882.

Dear Sirs: I have had a thorough knowledge of the "Asbestos" paints for a number of years from actual experience, and I do not hesitate to say that I deem it to be the best article for either inside or outside work that is now offered to the public. The covering quality of the Asbestos Paint is truly surprising. The tints are especially fine.

Truly yours, JOHN G. DEAN. Practical Painter, Grainer and Decorator.

Mechanics Falls, Me., Jan. 3, 1881.

Gentlemen: Please send us bottom prices for the Ashestos Liquid Paints. * * * We can only say, the Asbestos Paints have given us and our customers perfect satisfaction. * * * In a word, we like the Asbestos Paints the best of any Liquid Paints we have ever sold or used.

Faithfully yours, HAWKES & WHITNEY.

435 East Houston street, New York, April 12, 1881.

Gentlemen: * * * We can recommend your paint to any one as being first class, as the exterior of the Oriental Hotel, Manhattan Beach, will show, it having stood the storms of last winter, and looking as well to-day as the day we finished it. Yours truly, G. C. LUGAR, House and Ornamental Painter.

Fulton, N. Y., April 5, 1880.

Dear Sirs: Enclosed find check to balance accouut. I shall use your Paint more extensively this year than last, as every one who has had it put on, likes it better than Lead and Oil. I have finished painting my own house with your Paint, which I would not have done, did I not consider it better than lead. Yours truly, MARCUS F. CRAHAN, House Painter.

ROOF, CAR, AND BRIDGE PAINTS.

These Paints possess a more elastic body than any other, and are less liable to injury. They are prepared ready for use, and have proven to be the most economical paints ever produced for similar purposes. They were originally designed for preserving TIN AND OTHER ROOFS, but are now also used for Railroad Buildings, Bridges, Freight Cars, Steamboat Decks, Boats, and all wood and iron work exposed to salt or fresh water, and are especially adapted for Out-Buildings, Fences, Floors, Gas-Holders and other iron and rough wood-work. They are supplied in seven colors, viz., Brown, Red, Yellow, Gray, Buff, Slate, and Cream-White. One gallon will cover about 400 square feet, one coat.

ASBESTOS ROOFING.

The only reliable portable Composition Roofing in use. It is suitable for steep and flat roofs in every climate, and has been in use for a sufficient length of time to warraut us in claiming it to be the *best and most economical substitute for tin.*

It can be easily applied without the aid of skilled labor.

RELATING TO ROOFING.

Oswego Starch Factory, Oswego, N. Y., Oct. 28, 1878.

H. W. Johns, 87 Maiden Lane, New York:

Dear Sir: We have several acres of your Asbestos Roofing on our buildings; the first roof, put on fifteen years ago, is in good condition, and we prefer it to any other.

Yours respectfully, T. KINGSFORD & SON.

Office Bigelow Blue Stone Company, 247 Broadway, New York, April 8, 1880.

Gents: Owing to the fire which occurred on the morning of February 1st at the works of our blue stone and planing mills, situated at Malden on the Hudson, we shall shortly require more of your roofing material. That portion of the building covered with shingles was entirely consumed, but we take pleasure in stating that when the flames reached the part covered with your Asbestos Roofing, the edges fell over that part of the roof and prevented further progress of the flames. The building would have been a total loss had it not been for your roofing.

You are at liberty to make any use you choose of this letter, and refer any one to us as to the merits of the Asbestos Roofing. Respectfully yours, JOHN MAXWELL, Lessee.

Office of Passaic Zinc Co., 113 Liberty street, New York, April 5, 1875.

Dear Sir: We have had your Asbestos Roofing in use at our zinc works for some four or five years, and prefer it to either tin, slate, or any other kind of covering for roofs.

Yours respectfully, MANNING & SQUIER, Agts.

South Bend Iron Works, Proprietors of Oliver Chilled Plow Works, South Bend, Ind., Dec. 12, 1881.

Gentlemen: Replying to your favor of the 9th inst., our experience with the Asbestos Roofing is very satisfactory. We have used nothing else for the past two years, and design continuing its use on the new buildings to be erected by us the coming spring. The economy and durability of your Roofing is beyond question, and we are glad to be able to give it our endorsement. Yours truly, SOUTH BEND IRON WORKS.

ASBESTOS BUILDING FELT.

For interlining Frame Buildings. *Is strictly fire, dust, and wind proof,* and is rapidly taking the place of the ordinary sheathing felts.

ASBESTOS PLASTIC STOVE LINING,

a durable and economical Lining for Stoves, Grates, Ranges, and Furnaces, and for Repairing Stove and Flue Joints, Fire-Brick, etc., etc. Easily applied with a trowel, will not burn out, and clinkers will not attach to it.

We also manufacture, **ASBESTOS STEAM-PIPE and BOILER COVERINGS, ASBESTOS PISTON and WICK PACKING, ASBESTOS MILLBOARD, ASBESTOS SHEATHING, ASBESTOS FIRE-PROOF PAINT, COATINGS AND CEMENTS, ASBESTOS CLOTH, THREAD, YARN, TWINE, CORD, ETC., ETC.**

H. W. JOHNS MANUFACTURING CO.,

87 MAIDEN LANE, NEW YORK.

170 North Fourth street, Philadelphia. 45 Franklin street, Chicago.

FULL DESCRIPTIVE CATALOGUE SENT FREE BY MAIL.



"The Village Blacksmith."

It is a long time since we have had a good old-fashioned medical humhug, like Old Mother Noble's or Eddie Eastman's, for example; a marvellous remedy, with a story telling of its almost miraculous discovery. After a dearth of new remedies, or rather of their literature, a new one with a new story is, in its way, refreshing. The latest story is that of the "Village Blacksmith," and we have his portrait. Were it not that there is an anvil and a hammer, and the lahel that he is a blacksmith, we should take it to he the portrait of a prize-fighter dressed in his good clothes. The blacksmith's name was Gardner, and he lived in Yorkshire, England, he was a very good man; he had a daughter; she married and became Mrs. Cole and went to London to live. Cole was thrown ont of work, went to India and was soon killed on a railroad. About this time the hellows did not hlow in the smithy, nor did the hammer ring upon the anvil, for the hlacksmith was sick, had gone into a decline, and could not work. Matters looked very gloomy for Mrs. Cole, her husband dead and her father so sick, that she daily expected to hear of his death. When matters were at their worst, she was surprised to receive a letter from her father, who told that he was getting well and how it happened. In his illness he was, on warm days, carried to a place overlooking the sea One day, while there, in one of his paroxysms of pain, the blacksmith clutched at a bush, and not thinking, chewed the little stems. That did for Gardner; in less than an hour his pain was relieved, his doctor heing a sensible man, told him to "continue the drops." A wonderful shrub it was, for every time Gardner took its jnice, he felt "new life springing into his veins."

THE USUAL RESULT FOLLOWED.

The stuff was made into pills, hecause it would do "a vast amount of good." Mrs. Cole sold the pills, because she felt it was her "dnty." The pills were called "Globe Pills," not because they were globular in form, but hecause they would have "a world-wide reputation." The rest of the pamphlet is devoted to relating varions cases in which the pills have performed wonderful cures. If one douhts it, there is Mrs. Cole's portrait, as well as that of her father. These pills have been introduced into this country. Of course, they will have their brief day, and then join the hundreds of other "certain cures" in the limho of quackery.

Lotteries, Royal and Other.

J. Goldsmith & Co., St. Stephen, New Brnnswick, have had a monopoly of the "Royal" lottery business for a long time, though they call it a "Royal Distrihution" of Cash Gifts. Now comes another "Royal" affair with its headquarters at Merritton, Canada. It is to the credit of this that it does not try to conceal its real character hy calling it a "distrihution," but plainly declares itself to be a "Lottery," and a "Royal Canadian" one at that. It does not sneak hehind "gifts," bnt has "prizes," and will have a "drawing" at a given date, without any of the fool-cry of a "distrihntion."

PAYING THE BILL POSTERS.

This "Royal Canadian Lottery" sends ont its announcements, or show hills, to people in our Western States, requesting them to post these "in a conspicuous place." To pay for this service, the poster is to secure "one whole ticket of the said Lottery" hy registered letter—provided he sends "one twenty-five cent silverpiece."—This shows remarkable shrewdness on the part of the Royal Lottery. This concern evidently has an agency in the Republic, as its envelopes containing circulars, etc., hear the New York post-mark. Our Post-Office officials should look out for this.

THE LAWS NEED AMENDING.

While the present laws have done much to break up lotteries hy exe.nding their correspondence from the mails, these Canada chaps disregard them. An amendment was presented early in the present session of Congress which contained a most important feature. It proposed to exclude from the mails all newspapers containing advertisements of lotteries. Should this pass, it will he the most telling hlow yet dealt the lottery managers. The necessity for thus excluding such papers is shown hy the fact that lotteries are now advertised almost as freely as ever. Not only in papers with a large circulation, but in small local sheets, through which the managers reach the rural popnlation. An Ulster County, N. Y., paper, advertises a Kentucky lottery with a tempting display of prizes. The publishers of the paper do not seem to be aware that they are inciting their readers to violate the spirit, if not the latter of the laws of their own State and those of the Union.

Tree Peddlers and Agents.

"Hawkeye," Peru, Iowa, asks us to give warning that a very "toney" agent is abroad, offering and taking orders for, among other improbahle things, "The only true Grape Vine Raspherry." The warning comes too late to he of much use this season, hut if our readers have heeded our frequent general caution, to let all these heretofore-unheard-of trees and plants alone, they will have escaped this among other swindles. This "Grape-vine Raspherry," turns up anew like the return of an old friend, after an absence of many years. While we can not he sure what this particnlar "Grape-vine Raspberry" really is without seeing the plant, it is likely to he identical with that sent under the same name several years ago—the Purple Flowering Raspberry (*Rubus odoratus*). This shrub is not rare in rocky places throughout the Northern States, and with its rose-purple flowers, two inches across, is very ornamental. Its very flat, dry fruit, is well nigh worthless, and is produced very sparingly. We repeat, that no really valuahle new fruit is ever first introduced by peddlers. If one of these claims to have exclusive sale of a new tree or plant, or claims that this is introduced for the first season, our readers may be sure that it is just the tree or plant that they do not want.

Small Seed Swindles.

Every now and then a person having what he considers a valuahle variety of vegetahle or other plants, offers to send the seeds to those who will pay postage upon them. Editors, thinking that they are doing a good thing, make the announcement gratuitously. When these offers are made in good faith, those who make them usually soon run short of seed, and much dissatisfaction results. But such offers are not always disinterested: A. G. Rees, Nemaha Co., Kans., writes us that he saw an advertisement of one who offered to send a packet of a new variety of corn, upon the receipt of five cents. Mr. R. sent his half dime, and received "thirty-eight kernels of mixed corn;" of these only seventeen grains came up. From these seventeen stalks only seven hadly filled ears were harvested, of an impure or mixed variety. This is a rather small swindle, hut Mr. R. thinks, if one had enough to do, after paying for the thirty-eight grains, and the postage, the sender would make a handsome profit in this small seed bnsiness.

Coloring Photographs.

Inquiries and some complaints continue to come with reference to those parties who offer large inducements for ladies to work for them at coloring photographs. The number of these concerns is on the increase, and in addition to those named some months ago, a "Royal" and a "Reliahle Mannfacturing Co.," are offering inducements. A curious thing ahout the whole matter is, that each one warns the public against all others. Now a firm in Iowa, claim to be the "original inventors, and the only reliable establishment." We shall he glad to hear from those of our lady readers, who have had any experience with this photograph business.

Cautionary Signals.

A Preserving Recipe.

A suhscriber in Augusta, Ga., writes us that the following recipe is selling in that city for two dollars. It is claimed to preserve meats, fish, fruits and vegetables, in a perfectly natural state for thirty months. Here is the recipe: "For Five Gallons.

Boracic Acid, 2 oz.
Carbonate of Soda, 2 oz.
Salicylic Aeid, 2 oz.
White Sngar, 2 lhs.,

mix the first three ingredients in a qnart of cold water, stir nntil all is dissolved, then add the sugar. Pour this mixture into five gallons of water, and let it stand thirty minutes before using; then put in your fruit, or pour the liquid over it." It is stated that it will not change the flavor. The vessels must be sealed. It is claimed that this recipe is patented, and on the certificates of right to use, threats of prosecution for infringement are made. We are informed that the agent selling the recipe, took away from Augusta about three hundred dollars. As to the value of this preparation for preserving meats, etc., Boracic Acid has been used for many years, and so far as known, without deleterious effects. As to Salicylic Acid, we cannot speak so positively. It has been considerably used in medicine, and sometimes with unpleasant effects. The quantity here is small compared with the medicinal dose, still we can not advise its promiscuous use. We do not know what may be the effect of continuously taking it in small quantities. The effect of the Carbonate of Soda, would be to neutralize the two acids, at least in part. The matter is an important one in a sanitary point of view, and should recieve the attention of the health boards.

Amerikanischer Agriculturist.

The *Amerikanischer Agriculturist* is the *only purely* German Agricultural paper in the United States, and in the world for that matter. It is especially adapted for all farmers, gardeners, and housekeepers speaking the German tongue. It is all original and gives a world of matter of great value and interest. It gives the most important information to every German coming to this country, and every emigrant from the fatherland, should have it placed in his hands the moment he touches our shores.

Every one of our English subscribers who has a German in his employ, should see that he has the German *American Agriculturist*. The price is $1.50 per year, single numbers 15c. We will send a specimen copy to any address on receipt of two 2c. stamps. Will every one of our English subscribers please see that every one of their German friends and acquaintances sends for a specimen copy of this paper. Address, *American Agriculturist*, Orange Judd Co., Publishers, 751 Broadway, N. Y.

Clubs of Subscribers to the *American Agriculturist* can at any time be *increased* by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 5 subscribers and $6, may afterwards send 5 names more and $4, making 10 subscribers for $10.00; and so for any of the other club rates.

Bogus vs. Genuine Insurance.—The appalling number of Insurance Companies, which have been wholly or in part wrecked by genteel scoundrels during the past few years, naturally shakes public confidence in all kinds of insurance. Many of the genteel wreckers ought now to be in State prison; indeed, we know several of them who would be there, did they not by corrupt means influence legislation, or because the statute of limitations prevents the iron hand of the law from being laid upon them. Still the fell epidemic in Insurance Companies has not been without its beneficial results. While impairing confidence in Companies generally, it has shown just what Compauies could and should be trusted. Among the very first of these is the Travelers' Insurance Co., of Hartford, Conn., which is both Life and Accidental. If we remember rightly, the *American Agriculturist* has never before recommended bnt two Insurance Companies to the consideration of its readers. We now direct their attention to the Travelers, because we have absolute faith in its management, and because its figures and statistics for the past year show that it rests upon sure foundations.

Asbestos Roofing.—The "N. Y. Tribune" warmly endorses the Asbestos Roofing manufactured by H. W. Johns M'f'g Co., "as a light, portable, easily applied, and practically a fire-proof roofing."—What our contemporary says, we fully endorse. In fact, we have for many years recommended this roofing to our readers, because in our own experience, we have found it superior to anything else of the kind manufactured, and because we have yet to hear any complaint from the readers of the *American Agriculturist* whom we have urged to use it. To assist purchasers in selecting shades and colors, the manufacturers send free, upon application, sample sheets showing forty standard colors and tints. They likewise issue a pamphlet on "Structural Decorations," giving hints and suggestions in painting and decorating. The company also manufactures roof, car, and bridge paints, and have recently commenced to make strictly pure colors in oil. We presume our readers can procure all the information they desire from them regarding paints.

Some New Books.

Mrs. Elliott's Housewife.—Containing Practical Receipts in Cookery. By Mrs. Sarah Elliott. Revised and brought down to date by the author. Mrs. Elliott is a resident of a Southern State, and a large share of the recipes in the work are for the preparation of food in a manner popular with Southerners. This makes the present work quite unlike any other, and no matter how many works on cookery a housekeeper may have, this will be a valuable addition. Especial attention is given to preparing food for the sick, the chapter on this being very full. The talks upon domestic economy interspersed throughout, are marked by good sense and practical knowledge.

Florida and Game Water Birds of the Atlantic Coast, and the Lakes of the United States. Mr. Roosevelt has written up Florida from the sportsman's stand point, and any one who is fond of out-door life, with rod and gun, will follow him with deep interest as he unfolds the beauties of our Southern paradise of fine game. A yachting excursion to Florida during the winter season is most graphically described, such an one as will always rejoice the sportsman's heart, and heal the sickly body. The Second Part contains chapters on the proper season for game bird shooting; guns and gunnery; bay snipe and other sea shore hunting; ducks on the inland lakes, etc. The sportsman can here find almost anything from the definition of a hunting term to directions for building a "battery." Published by the Orange Judd Co., 751 Broadway, N. Y. Price $2.00.

The Game Fish of the Northern States and British Provinces.—Robert Barnwell Roosevelt, author of several pleasing and instructive books of the river, woods, and farm, makes friends with the Game-fish of the New World, and advances our knowledge of their strange and interesting habits. Mr. Roosevelt is somewhat of an enthusiast, and is sure to mingle sufficient pleasantry with his facts to keep the reader in good humor. Next to a fishing or hunting excursion with this genial writer, is the perusal of his many exploits, told in his inimical charming way. "Game Fish" contains chapters on instructions in Fish and Fishing, the American Trout; Sea Trout; trip to the La Val; the Salmou; White Fish; Maseallonge; Pickerel; The Thousand Isles; Striped, Black, Rock, and other Bass, etc. The methods of propagating fish are treated at length; also flies and knots, and the interesting subject of insect life. Camp-life makes up not the least pleasing portion of this book. The work is illustrated with full-page cuts of various game-fish, hooks, flies, knots, etc., and a fine frontispiece engraving of the author. Orange Judd Co., 751 Broadway, New York. Price, $2.

Household Conveniences.—Being the experience of many Practical Writers. Two Hundred and Twenty Illustrations. New York, Orange Judd Company. Price, $1.50. "Carpets and furniture may be of the latest styles and costly, and yet the rooms fail to be home-like," says the preface; and almost every one has had illustrations of the truth of the remark. There are houses that are no more suggestive of home, than the show-room of a furniture ware-house. All that is in the house has been purchased, and one with means can furnish a dozen houses exactly like it. It is only when a hundred little things, each due to the skill or thoughtfulness of a member of the family, or of some friend, have accumulated, that the house has an individuality, and expresses the tastes and pursuits of those who live in it.

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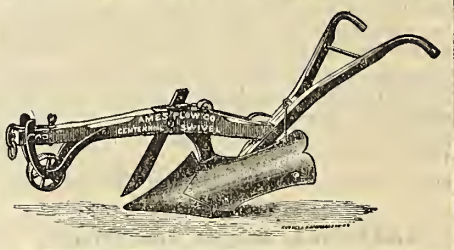
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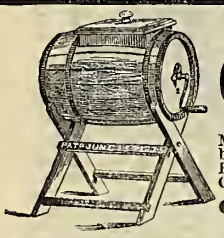
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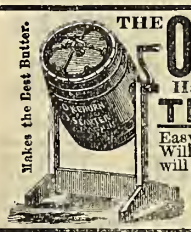
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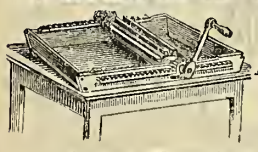
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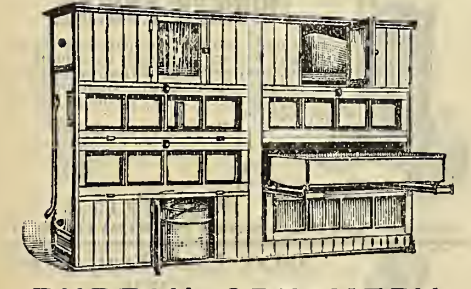
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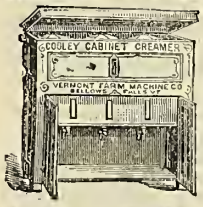
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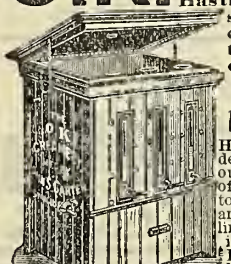
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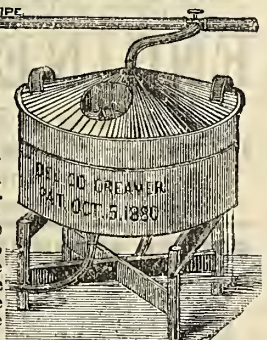
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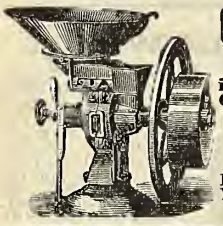
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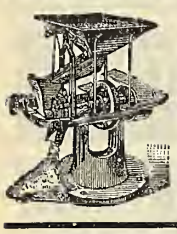
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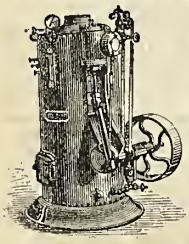
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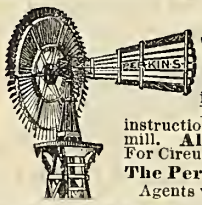
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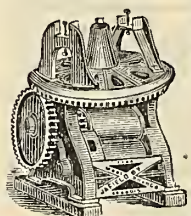
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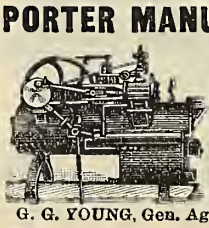
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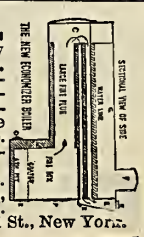


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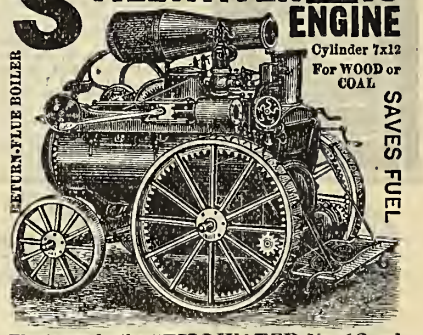




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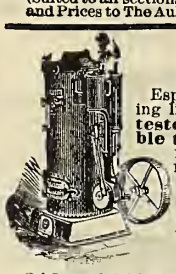
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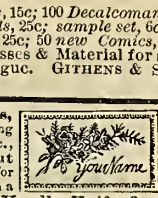


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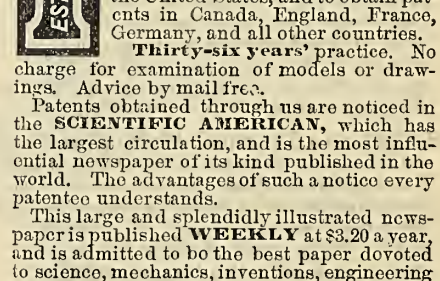
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Jacob H. Bean, Decatur, Ill.—Illustrates and describes his Hay Stacker, Hay-Loader, Hay-Roof, and other apparatus for facilitating the curing of the hay crop.

T. B. Everett & Co., 43 South Market St., Boston, Mass.—A large, finely illustrated catalogue of farm implements, including the most recent; also dairy apparatus.

W. H. Fay & Co., Camden, N. J.—Fay's Waterproof Manilla, with illustrations showing the manner of applying it to temporary buildings, etc.

Freeport Machine Co., Freeport, Ill.—The makers of the Stover Wind-mill announce their removal to enlarged quarters.

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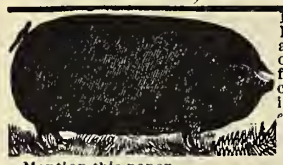
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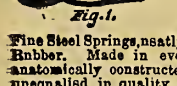


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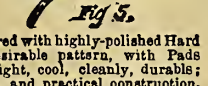


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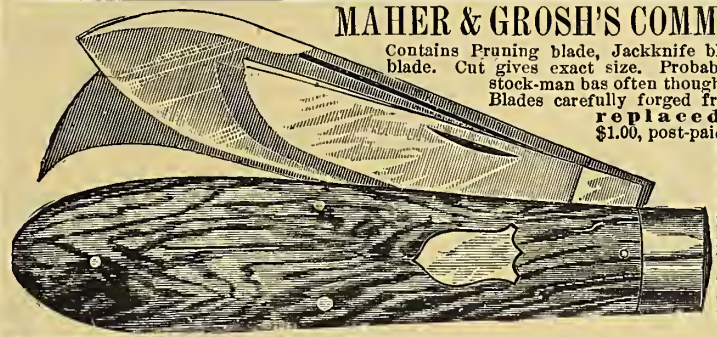
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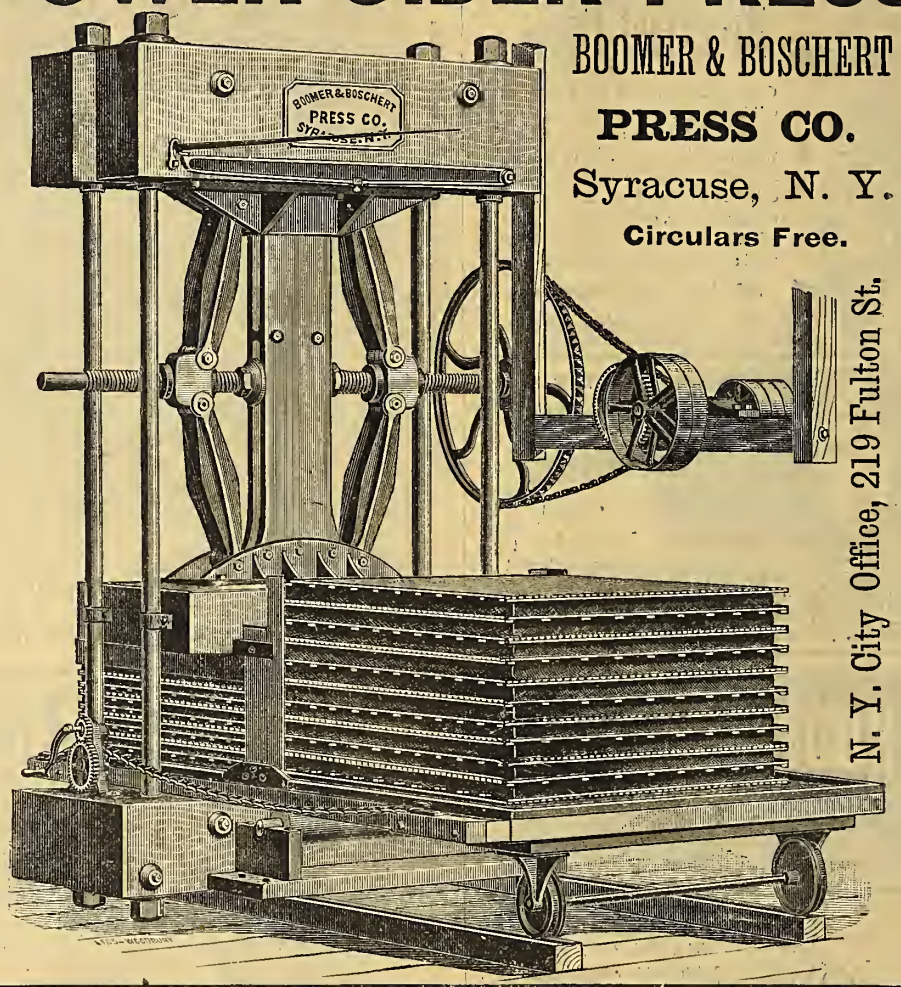
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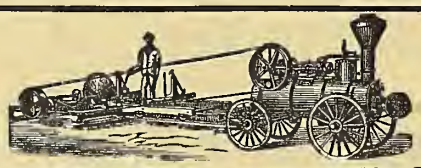
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VOLUME XLIII.—No. 6. NEW YORK, JUNE, 1884. NEW SERIES—No. 449.



JUNE DAYS.

Drawn and Engraved for the American Agriculturist.

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Contents of this Number.

Animal Ailments..... 248
Barn, A Small.....3 *Illustrations*.. 253
Bee Notes for June.....*Illustrated*.. 242
Birds, Encourage the..... 240
Bones on the Farm..... 249
BOYS' AND GIRLS' COLUMNS:
More than Strawberries and Cream....*Illustrated* . 261
An Illustrated Rebus..... 252
The Doctor's Talks..... 262
Some Interesting Birds.....2 *Illustrations*.. 263
Broccoli, A New Branching.....*Illustrated*.. 257
Chats with Readers..... 249
Cider-Making without a Press..... 244
City People as Farmers..... 249
Creamery, The, and the Farmer..... 246
Crop, The Clover..... 239
Crops, The Cost of—Keep Accounts..... 240
Cucumbers for Pickles..... 242
Cypress, The Southern or Deciduous..2 *Illustrations*.. 256
Dairy Questions..... 246
Day, A, in June.....*Illustrated*.. 237
Edgings in the Flower Garden..... 258
Farming in England.....9 *Illustrations*..250-252
Farmers, Among the..... 242
Fence, A Holder.....2 *Illustrations*.. 248
Fish, Preparing as Fertilizer..... 249
Flail, A Threshing.....*Illustrated*.. 248
Forest Commissions and Agriculture..... 246
Fowls, Houdan.....2 *Illustrations*.. 245
Fuchsias, Training and Arrangement..... 241
Garden, The Kitchen..... 239
Garden, The Flower..... 239
Gas-Lime as a Fertilizer..... 249
Gates, Farm 12 *Illustrations*.. 241
Grain, Transmutation of the..... 249
Grasses, Pasture and Meadow..... 254
Grapes, Here and There—The Ives..... 248
Herbage of a Permanent Meadow..... 248
Hives, Improved, and Fixtures*Illustrated*.. 242
Home, How I Found my Prairie.....3 *Illustrations*.. 244
HOUSEHOLD.
A Kitchen.....*Illustrated*.. 259
Summer Notes on Dress.....3 *Illustrations*.. 259
Fashion in Letter Paper and Cards..... 259
Cock-roaches and Croton-bugs.....2 *Illustrations*.. 260
The Back-Yard..... 260
A Fine Omelet..... 260
Wall Cabinet.....3 *Illustrations*.. 260
Idaho Valleys, Productive..... 248
Inventions, Recent Agricultural....15 *Illustrations*.. 264
Laurel, The Narrow-Leaved.....*Illustrated*.. 243
Liver-leaf, or Hepatica.....*Illustrated*.. 257
Live Stock Notes for June..... 237
Meadow, Herbage of a Permanent..... 248
Mildew, Lettuce..... 257
Milking Season, Prolonging the, in Cows..... 241
Nest Boxes, Hanging..... 247
Orchard and Nursery..... 239
Orchard, Pear, Pruning and Thinning..... 258
Oregon Climate..... 248
Pansy, Why not More?.....*Illustrated*.. 256
Parsnip, A Good Word for..... 257
Peas, The Eatable Podded..... 245
Pig-Pen, In the Pasture.....*Illustrated*.. 254
Pig Raising..... 249
Poultry House, A Small.....2 *Illustrations*.. 246
Poultry Keeping as a Business..... 245
Poultry, Practical Suggestions..... 253
Pruning and Thinning in the Pear Orchard..... 258
Pudding, An inexpensive..... 249
Recipes, Household..... 249
Record of Recent Agricultural Inventions...15 *Ills*.. 264
Rye for Hay..... 242
Salmon Fresh from Oregon..... 244
Salt as Fertilizer in the Orchard..... 249
Scab in Sheep, Treatment of.....2 *Illustrations*.. 240
Shoulder Pads..... 247
Silk Culture—Food Plants..... 254
Sportsman, The, in Camp..... 243
Stumps, Burning Out..... 249
Sumach, Preparing for Market..... 248
Sweet Potatoes in Northern Gardens..... 247
Timber and Wood Supply..... 246
Tobacco Stems for Currant Worms..... 255
Tool Box, A Portable..... 247
Tree-Litter, A Convenient.....*Illustrated*.. 247
Trees, Budding Forest.....5 *Illustrations*.. 255
Trough, A Reversible Watering.....*Illustrated*.. 248
Vines and Climbers, The Use of.....7 *Illustrations*.. 258
Wire Splicer, A.....4 *Illustrations*.. 247
Wood and Timber Supply..... 246
Work, Farm for June..... 238
Worms, Currant, Tobacco Stems for..... 255

June Greeting.

With this number, the *American Agriculturist* completes the first half of its forty-third year. Over 3,000 congratulatory letters from subscribers within a few weeks afford most gratifying assurances that the steady improvements in this Journal are everywhere recognized. The present owners and publishers who, six years ago, assumed control and management, have freed the *American Agriculturist* from *all* ENCUMBRANCES, and, equipped with brains and means as never before, unhesitatingly promise a paper better and stronger with each succeeding issue. Dr. Geo. Thurber, for nearly a quarter of a century the Editor, and **all** the able Associates and Writers who have rendered material assistance in making the *American Agriculturist* what it is to-day — **are still with us.** At no period of its existence has this Company been in so prosperous and stable a condition, as it now is.

See Page 269 For Important Announcement.

Writers for the June American Agriculturist.

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The stories are to be plainly written in black ink on one side of white paper, and should not exceed three thousand words. Sketches may accompany the story whenever they will add clearness and interest to the text. The stories are to be sent to the Editors of the *American Agriculturist* on or before September 1, 1884. The real name accompanying the story should be placed in a sealed envelope, bearing the assumed name of the writer upon its face. All stories submitted for the above prizes become the property of the *American Agriculturist*. A committee of three competent persons will act as judges and make the awards.

This offer is open to both young and old, and any person may compete for all the prizes. There is no limit to the range of subjects, and the stories may be either real or imaginary, or a combination of the two.



The best time to kill weeds is when they are very small. Most of this work should be done by horse labor. Keep the cultivator running through the corn field, using the hand hoe only close to the hills. Much of the cost of tillage should be charged to the succeeding crops, otherwise figures will often show that it does not pay to grow corn, or any hoed crop. Sow a quantity of fodder corn to supply an abundance of wholesome food when the pastures get short. Sow in drills three feet apart, and at weekly intervals, that there may be a long and continuous supply. A field from which winter rye has been removed, may be manured, plowed, and sown to fodder corn.

Sow Swedish turnips now in drills two and a half feet apart. Use at least two pounds of seed per acre. It is essential to have the soil rich and mellow. When the second leaf appears, thin the plants to about fifteen inches in the rows.

Haying begins this month, and every implement should be in readiness for this pushing work. Cut only as much grass as can be well cared for, otherwise the quality of the hay will be injured by exposure. The hay tedder, next to the mowing machine, is the most valuable haying implement. It hastens the curing, and makes the hay of uniformly good quality. Hay caps made of stout cotton are excellent to protect hay while in the cock. They often pay for themselves in a single season, and if properly cared for, will last for several years.

Buckwheat may be sown in June, and is a good crop for new land. It may profitably fill up a place where some other grain crop has failed.

Live Stock Notes.

Sheep shearing needs to be done with kindness and care. We have seen the skin badly cut, and the shorn animal ill-treated in other ways. Hold the sheep firmly, yet comfortably. The sale of the wool depends somewhat upon the manner in which it is rolled and tied. Each fleece should make a package that can be handled without falling to pieces. Wool tables, or boxes for securely doing up fleeces, have been figured and described in the *American Agriculturist* from time to time. Immediately after shearing the ticks leave the shorn sheep, and gather in the longer wool of the lambs. The young stock thus infested, should be dipped in a decoction of tobacco water, or in one of the mixtures made for the purpose, and sold in the markets. June butter is considered the best made during the year, and therefore the cows now should be yielding an abundant flow of rich milk. Among the essentials of good butter making, are a plenty of wholesome food and pure water, with

clean management of the milk and cream in every way, from the milking, until the butter is packed for market. Calves that are to become milch cows, need a quiet place by themselves, and regular rations of milk and meal. They should be gently handled, and taught to lead with halter. Pigs for the early market need a good run in a pasture—clover is best, and a daily supply of bran and meal slops. The proper place for pigs is in the orchard, where they may feed upon the wormy fruit that falls, and thus destroy vast numbers of injurious insects. Rats, owls, skunks, and hawks, are natural enemies to the young chickens, and to keep them away the yards must be watched by day, and closed coops provided for the night time. The garden may be rid of many insect pests by allowing the young chicks to run among the growing crops.

Orchard and Fruit Garden.

Indications point to an abundant fruit year, though the peach crop may be injured by late frosts, or a long cold rain while the trees are in blossom, may diminish the "set" of apples and pears. These disasters are likely to be local. In years of abundance, while common and poor fruit hardly pays its carriage to market, really fine fruit brings about the usual price. It is in such years that the grower, by care in producing fine specimens, and packing them in an attractive manner, finds fruit-growing profitable, while his indifferent neighbor declares that "fruit don't pay." To produce fine specimens, the number borne by the tree must be reduced; this might have been done in the winter by pruning, but now the orchardist must rely upon thinning the fruit. If we give a single specimen the nourishment that would have been divided between three and four, the result will be seen in the extra size and beauty of the one thus favored. In no fruit is there such a difference in price between the common and extra, as in the peach, and it is a well established fact, that with peaches thinning pays. It will also pay with pears, and especially early apples, to the production of which fruit-growers should give more attention.

Strawberries.—See that the pickers do not mix over-ripe berries with those to be sent to market. While the berries at the top of the basket may be turned to show the best side, the fruit should be the same all through.

Currants, when nearly full-grown, in some markets, bring a higher price than when ripe. If green currants are marketed, thin the crop so that that which is left to ripen, may be benefited.

Gooseberries are generally sold green. Look out for the worm on both these and currants, and use White Hellebore, a tablespoonful of the powder in a pailful of water. Apply with a syringe or garden engine.

Tents which the insects pitch in the heads of trees, should be removed early in the morning. The hand, with, or without a glove, is the best implement yet invented.

Grape-vines.—Tie up the young shoots. Pinch out the ends, leaving two or three leaves beyond the last bunch. Each shoot usually bears three clusters. If these are reduced to two, or even one, the fruit will be all the finer. The rose-bug is very destructive to the grape—shake it off in early morning, and catch in a pan in which is a little kerosene.

Kitchen and Market Garden.

Weeds are the important crop just now. If they have been allowed to get a foot-hold, cultivators, hoes and other implements must be set at work. If a long, sharp-toothed rake is frequently used between the rows, or wherever there is a bare surface, it will destroy the weeds while they are young, and save much labor—use the rake.

Sowing for Succession is often neglected in private gardens; the season for each vegetable may be prolonged by successive sowings. Beans, peas, corn, beets, etc., etc., may well be sown weekly.

Lima Beans.—If the first planting failed, try again.

Asparagus.—Stop cutting as soon as peas are ready and let the tops grow.

Cabbage and Cauliflower.—Seedlings for the late crop should be thinned, to get strong plants.

Cucumbers for pickles do best when the soil is well warmed—the middle or last of the month is soon enough.

Squashes.—Plant the winter sorts in highly manured rows, made ten feet apart, dropping a dozen seeds every four feet, ultimately thinning out the plants to two. As soon as the plants appear, dust them heavily with plaster, or a mixture of plaster and ashes, and if rains wash it off, repeat it, until the plants are strong enough to resist insects.

Rhubarb.—Keep the flower stalks cut away as they appear.

Sweet Potatoes may be planted during this month, according to directions given elsewhere.

Tomatoes.—Continue to tie to the trellis. Cut away all the badly-formed fruit, and look out for "the worm," which may be detected by its droppings on the ground below.

Items.—Thin freely, especially with root-crops. One well-grown carrot, salsify, etc., is worth more than three or four starved, spindling roots.... Provide a seed-bed of sage, thyme and other "seasonable" herbs, from which to draw plants to occupy ground cleared of other crops....If celery plants get large, cut off the tops to make them stocky.... Store sashes, straw-mats, and similar appliances under cover. Especially use the rake freely to destroy young weeds in the garden.

Greenhouse and Window Garden.

It is generally desirable to remove the plants from the windows, but those in the green-house, as a rule, can be better cared for by shading and watering, than if they are taken outside. Plants in pots set outside for the summer, should have partial shade. Set the pots on coal ashes, to keep the worms from entering. The roots are often much injured if the sun falls upon the pots; this may be prevented by setting a board on edge to shade them. Many fuchsias and cactuses bloom only in summer; the best place for these is on the veranda. Hanging baskets are best watered by plunging them in a pail or tub of water, until the earth is well soaked through. Boxes upon the outside of the windows should not be allowed to get dry. Unless the surface of the soil is all covered by the plants, it is well to cover it with moss, such as is found at the bases of trees in the woods. All repairs to the green-houses or the heating apparatus, should be made during summer, and the earlier the better.

The Clover Crop.

Red Clover (*Trifolium pratense*) is the most valuable of all forage plants, but is not suited to wet land. When cut in full blossom and well cured, it is excellent feed for work horses, but if badly cured, dusty, and unripe, it should never be fed to them.

As a renovator for the soil, there is no crop equal to clover. It makes the best food for cattle and sheep, and their young, including colts, and will add greatly to the value of the manure-pile. Clover is the easiest to start, and more certain of producing a crop than any grass. There need never be any failure, if the ground is properly prepared, and the young plants are not choked out by an overshadowing and exhaustive crop of grain. A large variety of clover is best where enriching the land is a main object in growing the crop, as it will afford more stalks and a larger amount of vegetation to decay. It does not make hay of as good quality as the medium or smaller varieties, being so much coarser, and on strong land it is liable to fall and become matted, so that cutting it with either scythe or machine is difficult. The smaller varieties will produce two crops of hay of superior quality in one season. The Alsike or Swedish clover (*Trifolium hybridum*) is a variety between the Red (*T. pratense*), and the White (*T. repens*), with scarlet blossoms, and will ripen its seed and renew itself if allowed to do so. It has no merit over the red clover as a forage plant.

The Flower Garden and Lawn.

The rule to mow the lawn once a week should not be followed blindly. In a dry time, when grass grows but little, mowing should be suspended. Be governed by the condition of the grass. As shrubs and herbaceous perennial plants pass out of flower, cut away the faded clusters, unless it is desirable to save seeds, when a few may be left for that purpose. Roses have many enemies; the slug may be treated with White Hellebore, and the rose-bug may be shaken off and caught, while torpid in early morning. When the leaves of hyacinths and other spring bulbs begin to fade, lift the bulbs, and when dried, store in a cool dry place for fall planting. Continue to transplant annuals, and to set out summer bulbs, such as gladioluses, tuberoses, etc. Give stakes to dahlias, and all other plants that need support. Ornamental beds, or ribbon lines, need attention to keep the kinds distinctly marked. Cut back the plants that trespass on their neighbors. Sow annuals for succession. Do not forget the "Everlastings," always so much in demand for Christmas and other winter decorations.

Bones on the Farm.

It is well enough known that bone, when ground fine, makes one of the best and cheapest manures, especially on lands long in use. The needs of farmers with abundant capital are well enough met in the commercial fertilizers. With the Experiment Stations to analyze the samples, there is not much danger of adulteration. The high price of this comminuted bone, two cents a pound and upward, deters many farmers from using it on a large scale, even where there is no doubt that the investment would pay. In a limited way, the small farmer has the means within his reach, of reducing several barrels of bone to a fine powder every year. A solution of potash will reduce bone to a fine condition, and make it available for plant food. Most farmers still use wood for fuel, and the ashes from the fifteen or twenty cords used in a year, if saved, would reduce all the bones ordinarily within reach of the farmer. The old-fashioned leach that used to stand at almost every farmer's back door for soap making, was a good contrivance for reducing the bones. But any tight, strong cask or box, will answer quite as well for this purpose. Water poured upon the ashes makes a lye, or solution of potash, strong enough to decompose the bones. The casks should stand under cover, so that the quantity of water applied to the bone and ashes, may be under control. The time it will take to reduce the bone to a powder, will depend upon the amount of potash in the ashes, and attention bestowed upon the process. It is essential that the ashes and bone should be closely packed in the mass, and that they be kept in a moist state, adding water as it evaporates from the surface. The finer the bone before it is packed in the ashes, the sooner will it be reduced. The process can be hastened by putting into the mass a few pounds of common potash. But this is only necessary to save time. Ashes from hickory, or any of the hard woods, contain sufficient potash to decompose the bone. When the mass is soft enough to break down with a spade or shovel, it can be mixed with land plaster, dried peat, or loam, to make it convenient for handling. It is a concentrated fertilizer, to be used with discretion in the hill, or applied as a top-dressing to growing crops in the garden or field. We are quite sure that any one who uses this preparation of bone and wood ashes, and sees the vigorous push it gives to garden and other crops, will be likely to continue it. But many farmers near seaports and railroad stations, use coal mainly for fuel, and will have to resort to a hand or horse-mill to use up the waste bones. Small mills are extensively used by poultry men, for crushing oyster shells as well as bone, and the machinery can be adjusted to break the bone coarsely for hen feed. The oil and gelatine of the bones have an alimentary value, and, turned into eggs, pay much better than when used as a fertilizer for the soil.

Treatment of Scab in Sheep.

HENRY STEWART.

The prevalent disease everywhere known as scab, is at times troublesome to western sheep men, whose flocks run on the range, and the universal tick is here, as elsewhere, a great annoyance. As a remedy for these pests, it is usual to dip the sheep. A system of yards and pens is laid out for the easy handling of the sheep, and these all lead to a point where a dipping vat is provided, to which are annexed, boilers for heating the dipping fluid, and draining pens for collecting the dripping from the dipped sheep. A plan of the yards and pens is shown in figure 1, and another, which may be more suitable in some cases, in figure 2. The former plan is laid out as follows: The large yard, marked 1, tapers gradually to a lane, 2, guarded by a gate, 3, which swings either way to turn the sheep into the pens 4, or 5, as may be desired. This plan is devised so as to be made available at shearing time, when the sheep are turned into the pen 5, which has a boarded floor, that it may be swept and keep the sheep clean, and from which they may be taken into the shearing yard or shed marked 6. This arrangement thus serves both purposes, and every ranche where more than a thousand head are kept, should be provided with something of this kind. It is always best to dip the sheep immediately after shearing, as the dip then has more effect upon the skin; but a dipping should have been given two weeks previously, to cleanse the wool from the mites, which would otherwise infest the yards and pens, and make them a constant source of infection. The yard, 4, is intended for the lambs, which are thus spared a good deal of injurious crowding among the sheep. From pen 5, pens 7 and 8 are filled, and as the sheep are crowded to the narrow part of the pen, a man takes one by one and drops them into the vat 9. Each sheep is completely immersed in the dip, and is guided by a shepherd by means of a crook, back and forth, so as to force it to remain until the wool is saturated with the medicated fluid. When the sheep has been guided up to the bar 10, it is pushed completely under the surface, and under the bar, where it reaches a sloping barred floor, 11, up which it passes on to the draining floor, 12. The work thus proceeds until this floor is filled, when the sheep are passed into the next one, 13. The floors of these pens slope a little, so as to carry the drip from the wool back into the vats, and prevent waste. The temperature of the liquid in the vats is kept up by means of a supply in a boiler near by, from which hot liquor is dipped as it may be required. When pen 13 is filled, the sheep are then dry, and are turned loose through the gate into the open ground. The pens on either side of the lane 2, are intended for lambs which are able to escape through the bars of the fence. The other plan, figure 2, consists of two circular fences, the space enclosed between them being divided into pens by cross fences and gates. The entrance gate, *A*, opens from a long tapering lane, into which the sheep can easily be driven from a large enclosure outside. It opens towards *B*. The gate *C*, being open, the yards are filled in succession, the central one and the first one being last filled. At *V* are boilers and store vats, *S*, filled with hot liquid to supply the vat *D*. All being in readiness, four sheep are put into the decoy pens, *P, P;* these have wire fences so that they are plainly seen by the other sheep. The first pen is then opened and the sheep run towards the decoys, where they stand on a drop or tilting stage, made between the decoy pens. This stage holds ten to twelve sheep, and they are thus plunged into the dip and completely immersed. They are guided to the sloping floor at the other end of the vat, from which they are turned into the draining yards, each of which is filled alternately, thus giving ample time for the sheep to dry, before they are turned out. This is necessary, as the sheep have lambs at this time, and the dip is not very agreeable to the lambs. When both yards are filled, the first one is emptied and immediately filled again, while the sheep in the other are draining. The dip consists of an infusion of tobacco, mixed with sulphur.

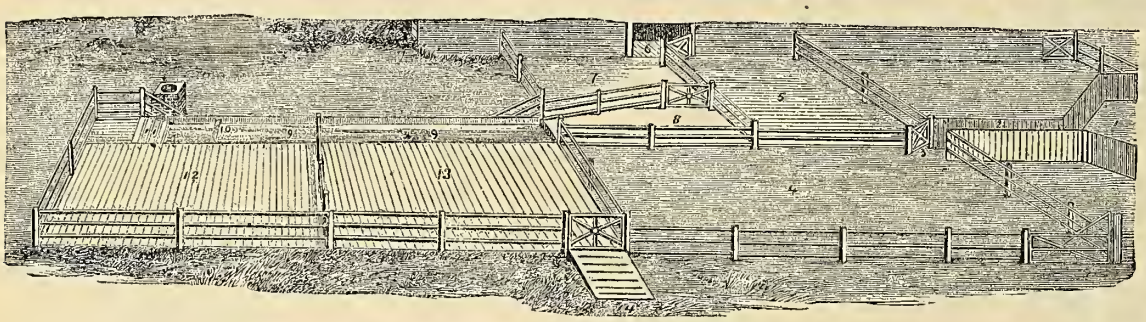


Fig. 1.—YARDS AND PENS FOR DIPPING LARGE NUMBERS OF SHEEP.

Drawn and Engraved for the American Agriculturist.

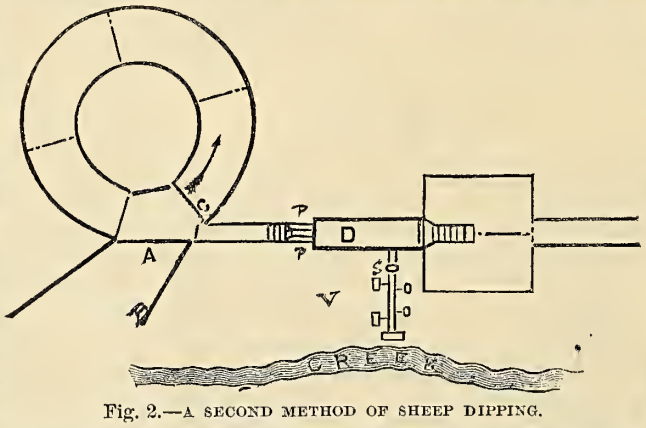


Fig. 2.—A SECOND METHOD OF SHEEP DIPPING.

The Cost of Crops.—Keep Accounts.

Not one farmer in five hundred keeps books of accounts. No other class of men with the same amount of capital conducts business at such loose ends, and is one of the modern wonders that farmers do not all become bankrupt. It shows how sure and safe farming is, for we should expect nothing less than failure on the part of the merchant or banker who kept no accounts. Without accounts, the farmer can know but little about his business. He can not tell what a single crop costs or what he realizes for it, which crop pays and which does not, what class of farm-stock is to him profitable or otherwise, or what field has brought in more than has been expended upon it.

He does not keep accounts, because he thinks the work too difficult, but it is not necessary for the farmer to be an expert accountant. If possessed of only average intelligence, a fair supply of good common sense, a blank book and a pencil, he can do all that is essential. The transactions of each day can be set down at night in a few minutes. Among the leading advantages of book-keeping is an accurate knowledge of the cost of each crop. When sold as harvested, the amount to be credited to a crop is easily determined. When fed to stock, or with its nature otherwise changed, a correct account of its value may be kept by reckoning it at the market price at the time.

A crop should be charged with the following items: Plowing of the land; preparing land for seed; fertilizers; value of seed; cost of seeding; after cultivation, if any; harvesting; marketing; interest on value of land occupied, or rent; tax, unless rent includes tax; interest on stock, machinery, implements, etc.; repairs, and wear and tear on implements, machinery, etc.; insurance. The items will vary slightly with each crop. All labor should be estimated at what it costs, or what it would cost if laborers were hired. The value of seed and land, tax, rent, interest on land, implements, buildings, etc., and many other items may be definitely computed. Some items must be estimated approximately, but a substantial degree of accuracy may be attained. A farmer can make a pretty close estimate of the number of acres a plow usually turns before it wears out. Dividing the cost of the plow now in use by this number of acres, will give in cents the wear and tear of a plow per acre. Multiplying this by the number of acres in each case will determine the amount to be charged in this item against each particular crop. In the same way the wear and tear of other implements can be determined. The work may be made to include this item. Thus, the farmer may get three dollars per day for every day he plows for others. Then multiplying the number of days employed in plowing for a certain crop by three dollars, will include in the product labor, interest on implement and stock, wear and tear of same, etc. For so much per acre, the man with a self-binder will cut and bind your wheat. This again will include several items in the cost of harvesting.

Wear and tear of land and value of fertilizers must be approximated, and are both considered together. The cost of fertilizers is a matter of certainty, but the amount to be charged against the crop to which they are applied is not, for it will not appropriate all of them. If the fertility of the land is maintained by the use of fertilizers, nothing for wear and tear of land should be held against the crop, for it is charged with the cost of the fertilizers. It is apparent that the amount to be charged in this item each farmer must determine for himself, for it will depend upon the character and quantity of the fertilizer, whether it has been applied to that crop, or the preceding one. Yet, with a little thought, the farmer can estimate these very correctly. If part of the crop is reduced to manure, the value of this should be credited to it.

Encourage the Birds.

War is being waged by farmers against all birds, except a few popular songsters, and most boys are taught that birds and birds' nests are their rightful prey. These little creatures do some damage it must be admitted. They will pick up seed that has not been well covered, but that ought to teach the farmer to sow his seeds more carefully. They will feast upon the ripe grain, and sometimes destroy more than they eat; but the farmer seldom considers that he might not have had any grain to harvest, were it not for these same feathered intruders. During the time between sowing and harvesting, birds must live upon something besides grain, and I fancy that farmers seldom think that that something is principally insects, and the eggs of insects. They rear their young on these, and one can hardly estimate the immense number of insects thus destroyed. Were it not for this safeguard that nature has kindly furnished us in the form of the feathered race, the world would, according to the best calculations, be completely overrun in a few years of uninterrupted propagation, with crawling, stinging pests. Birds have an important work to do, and

we should aid them with all the means at our command; certainly we cannot afford to destroy our protectors. Every farmer should teach his children to cherish and protect their feathered friends. Encourage the birds, and children too, by building bird-houses about the farm buildings. Teach the boys to build these houses, and thus serve two purposes at once—accustoming them to the use of tools, and imbuing their minds with humane sentiments. Many a farm home knows naught of music, but that which floats on the air from nature's own orchestra. Let us have all the sweet sounds we can, to soften and lighten our rural toils. W. D. BOYNTON.

Farm Gates.

Farmers lose enough time letting down and putting up bars to pay their taxes, if profitably expended. I would have many gates upon the farm. They are inexpensive, convenient, and should be wherever there will be any use for them. When I see a farm well supplied with gates, I know that man is progressive and making money, for he values time, and wisely seeks to save it.

In these days of self-binders the gate-ways should be at least fourteen feet wide. I have found the best material for a gate to be pine boards, and seasoned white oak for end pieces. All the wood used in the construction of the gate should be well seasoned. It is best to plane all the wood-work, though this is not absolutely necessary. Cover each tenon with thick paint before it is placed in its mortise. The gate itself should be painted. Have everything fit tightly. Fasten the brace to the cross-pieces with small bolts or wrought nails well clinched. Mortise the ends of the cross-pieces into the end posts, and secure them in place with wooden pins wedged at both ends, or iron bolts. The best cross-pieces are made of pine fencing-boards six inches wide; the end pieces should be four by seven-inch scantling, although the one at the latch may be lighter. Five cross-pieces are enough. The lighter the gate in proportion to strength, the better it is. There is but one right way to brace a gate, and many wrong ones. The object of bracing is to strengthen the gate, and also to prevent its sagging. Gates sag in two ways; by the moving to one side of the posts upon which the gates are hung, and the settling of the gates themselves. Unless braced, the only thing to hold the gate square is the perfect rigidity of the tenons in the mortises; but the weight of the gate will loosen these and allow the end of the gate opposite the hinges to sag. It is plain that a brace placed like that shown in fig. 1 will not prevent this settling down. The only opposition it can give is the resistance of the nails; and these will draw loose in the holes as readily as the tenons in the mortises. A brace set as shown in fig. 2 is not much better,

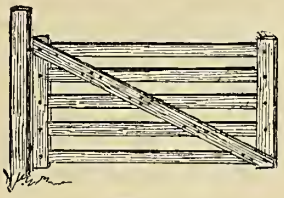


Fig. 1.

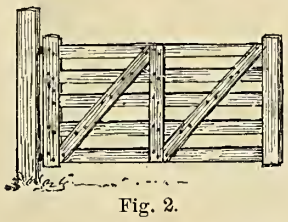


Fig. 2.

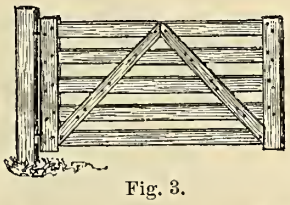


Fig. 3.

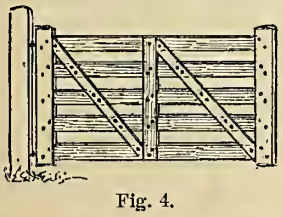


Fig. 4.

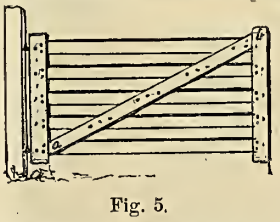


Fig. 5.

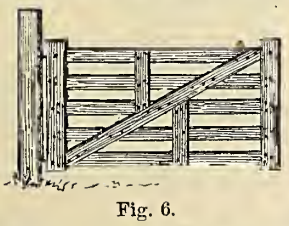


Fig. 6.

as the resistance must depend upon the rigidity of the upright piece in the middle, and the nails or bolts holding it will give way enough to allow the gate to sag. The method shown in fig. 3 is fully as faulty, while the form shown in fig. 4 is even worse. It seems strange that any one should brace a gate in these ways, but I have quite frequently seen it attempted. The only right way to brace a gate is shown in fig. 5. The gate may be further strengthened as shown in fig. 6. Before the gate can sag, the brace must be shortened; for as the gate settles, the points *a* and *b* must come closer together, and this the brace effectually prevents.

The posts should be set in such a way that they will not be pulled to one side and allow the gate to sag. The post must be put below the line of frost, or else it will be heaved out of position; I would say that three feet in the ground was none too deep. Have a large post and make a big hole for it. Be careful to set the post plumb, and stamp the earth firmly in the hole—it can not be stamped too hard. While stamping, keep walking around the post so that the earth will be firmed on all sides. Blocks may be arranged as shown in fig. 7; but I do not consider this necessary when the post has been rightly set, although it may be advisable to take this further precaution.

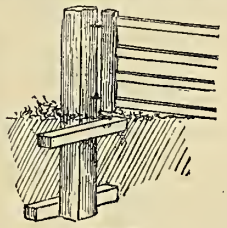


Fig. 7.

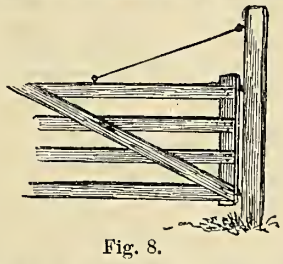


Fig. 8.

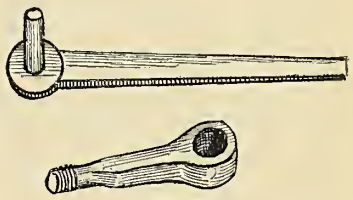


Fig. 9.

To remove the pulling weight of the gate when closed, the swinging end may rest upon a block; or a pin inserted in the end piece of the gate may rest in a slot sawed in the post, or on a shoulder of the post. Fig. 8 shows one end of a combination of two plans—the iron rod from near the top of the high post holds the gate, while the strain upon the post is lessened by the opposite end of the closed gate being supported on the other post.

For hanging the gate I have found the best hinges to be those shown in fig. 9. One part passes through the end-piece of the gate, and is secured by a nut on the end. The other piece is heated and driven into the post, following the path of a small auger-hole. Next to this I rank the strap hinge, which should be fastened with bolts or screws. Three easy, cheap ways of supporting the gate are shown in figs. 10, 11 and 12. In fig. 10 a stout band of wood, or one of iron, may be used in place of the chain. And in place of the stool for the reception of the lower end of the end-piece, a block resting on the ground, or a shoulder on the post, may be substituted. The mode shown in fig. 11 is common in the West. Its construction needs no explanation. By sliding the gate back until it almost balances, it may be carried around with ease. In fig. 12 the fastening, or latch, must be so arranged as to hold the lower part of the gate in position. The box of stones renders it easier to move the gate. A heavy block of wood serves the same purpose. JOHN M. STAHL.

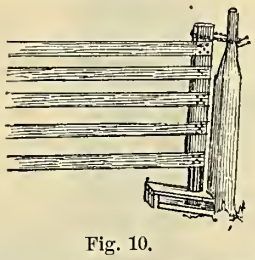


Fig. 10.

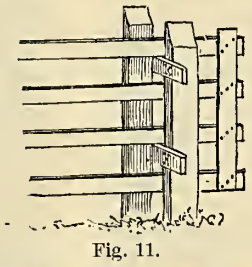


Fig. 11.

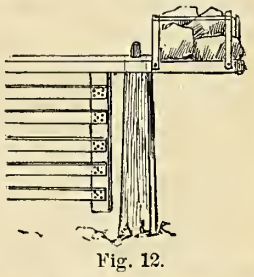


Fig. 12.

Prolong the Milking Season of Cows.

It is well known that there is much difference in the length of time cows continue in milk in the same herd, and with the same treatment. Some cows give milk but seven months, while others continue nine or ten months. This difference is mainly a matter of breed and of training during the first season of the heifer's milking. The Jerseys and their grades are generally better fed and run easily from the start, into a long milking season, not infrequently up to the time of calving, where this is desired. But in any breed the season may be prolonged by the care of the heifer with her first calf, and during the first milking season. She should be kept in good condition all through the months of pregnancy, and, if practicable, drop her calf in the fall, when the barns are full and there is an abundant store of milk-producing food. With good hay, and regular rations of roots and meal, and kind treatment, the habit of giving milk through the winter may be thoroughly established. In a family cow this habit adds much to her value.

Fuchsias—Training and Management.

JAMES SHEEHAN, GENEVA, N. Y.

We confess to have a special liking for the Fuchsias, and think no assortment of house plants is complete without one or two varieties of these beautiful flowers. They are easily propagated, either from cuttings or by layers, and the amount of bloom one strong, healthy plant is capable of producing under favorable circumstances, is truly wonderful. Upon one plant of *Fuchsia speciosa* started from a cutting of a single eye in March, we counted at one time in the December following, one hundred and fifty perfect blossoms. The plant stood in an eight-inch pot, and measured four feet in hight. Some kinds do better as house plants than others. Among the best are *F. speciosa*, *F. fulgens*, and the Rose of Castile; and I would particularly recommend these sorts as superior to all others for the window garden. The right kind of soil has everything to do with success in growing fine Fuchsias; it should be of a light, peaty quality, with one-third cow manure, all thoroughly mixed together until well decayed. They also relish an abundance of water while growing, and once or twice a week an application of liquid manure will be beneficial.

While growing, never allow the roots to become pot-bound, but when the roots begin to form a mat on the outside of the ball of earth, it is time to

shift the plant into a pot of the next larger size, and so on as the plant may require it. This is a very important point, and should not be overlooked if strong, healthy plants are expected. Fuchsias are especially desirable for training on trellises. They can be trained over an upright trellis, and have a very pretty effect, but the best form is that of an umbrella. Secure a strong, vigorous plant and allow one shoot to grow upright until about two feet high, then pinch off the top of the shoot. It will branch out and form a head, each shoot of which, when sufficiently long, may have a fine thread or hair-wire attached to the tip, by which to draw it downward; fasten the other end of the wire or thread to the stem of the plant, and all the shoots will then be pendant. When each of these branches has attained a length of eight inches, pinch off the tip, and the whole will form a dense head resembling an umbrella in shape; and the graceful flowers pendant from each shoot will be handsome indeed. Remember to keep the stock clear of side-shoots, in order to throw the growth into the head.

If properly taken care of, most Fuchsias will bloom the year round; but some kinds can be especially recommended for winter blooming; among them are: *F. speciosa*, flesh-colored, with scarlet corolla; *F. serratifolia*, orange, scarlet corolla, greenish sepals; Meteor, deep-red corolla, light-pink sepals. The following are the finest in every respect that the market affords. Mrs. Bennett, pink; Sir Colin Campbell, double-blue; Rose of Castile, single-violet; Elm City, double-scarlet; Carl Holt, crimson; Tower of London, double-blue; Wave of Life, foliage yellow, corolla violet; *F. speciosa*, single, flesh-colored; and *F. fulgens*, long red corolla.

Cucumbers for Pickles.

The pickle crop is a fairly profitable one if there are pickle factories within easy reach. The seed is sown in the first half of the present month. A light, warm, and rich soil is needed. The ground may be marked off, four feet apart each way, and hills made where the marks intersect. A common method is to sow the seeds in drills. The whole field is heavily manured, and the seed sown in drills five feet apart, or furrows are opened, the manure distributed liberally in them and well worked in with the soil. The earth is then thrown back over the manure and the surface rolled. At least half a dozen seeds to the foot are then dropped in a slight furrow made by a marker, and covered about an inch deep, pressing the soil with a light roller or the blade of the hoe. Insect pests will appear as soon as the young plants are up, and the latter, from the first, must be copiously dusted with plaster or a mixture of ashes or plaster. Those who live near the coast prefer air-slaked shell-lime for this purpose. The dusting with either material should be done in early morning while the dew is on, and be kept up until the vines begin to run. The plants should be gradually thinned and finally leave one strong one at every foot in the row. When the vines begin to bear, the cucumbers should be picked daily or every other day, and of the size in demand. A barrel holds about five thousand small cucumbers, and from twelve to fifteen hundred large ones. Always cut the cucumbers, leaving them with a stem.

Rye for Hay.

Mr. "A. G. W.," Manchester, Tenn., writes us: You ask for experience in using rye for hay. I cut it in bloom. The heads even then are sweeter than the straw, and horses will pick it over for the former and waste the latter unless cut. When cut and fed to cows giving milk I find it equal to the best Timothy hay, and with me either makes more milk than clover hay.—Rye is better to seed down with than oats, I believe, otherwise oats would be preferable, as nothing else makes so good hay as oats cut just as the most forward heads are in bloom. I have tried both.—For a sowed crop to make hay Hungarian grass is next to oats.



Improved Hives and Fixtures.

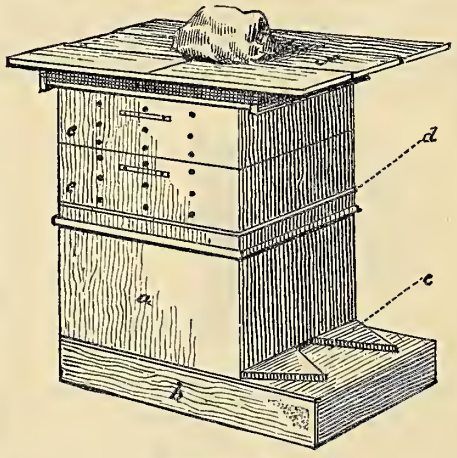
W. Z. HUTCHINSON.

Since its invention, the movable-comb hive has undergone a vast amount of modification. At present, however, the majority of bee-keepers have laid aside the supposed improvements and adopted the original frame, and many of them the original style of hive, as given to the world years ago, by that prince of apiarists, the Rev. L. L. Langstroth. The standard Langstroth's frame is nine and one-eighth inches deep, and seventeen and three-eighth inches long; and the standard hive shown at *a* in the engraving, is simply a box with rabbets on the inside of the upper edges of the end pieces upon which to hang the frame. The space between the frames and the inside of the hive is three-eighths of an inch.

A cheap and excellent stand for hives is simply a shallow box, without top or bottom, made from cheap lumber. It should be the same size as the bottom board of the hive, and four inches is of sufficient hight. Such a stand is shown at *b*.

Many devices have been employed to enlarge or contract the entrance to a hive, but there is nothing more simple and effectual than triangular blocks, as shown at *c*. They are sawed from inch boards, and are large enough to completely close the entrance when placed in front of it. By moving them apart the entrance is opened; while their shape is such as to guide the bees into the entrance, even though it should be nearly closed. When robber bees are troublesome, the entrance may be easily made so small that only a single bee can pass, while during the hight of the honey-harvest the blocks can be entirely removed.

In a previous article it was mentioned that some bee-keepers used queen-excluding honey-boards



A STANDARD HIVE.

between the brood and surplus departments to prevent the queen from entering and depositing eggs in the section boxes. The edge of such a board can be seen at *d*.

Many bee-keepers are discarding wide frames for holding sections, and adopting what is called the "Heddon Case": This is simply a box without top or bottom, one-fourth of an inch deeper than the hight of the sections, with wooden partitions inside between the rows of sections. Two of these cases are shown in position at *e*, *e*, and the position of the wooden partitions will be readily understood by noticing the heads of the nails that hold them in place. To support the sections, a strip of tin, one fourth of an inch wider than the thickness of one of the partitions, is nailed to the lower edge of each partition, and a similar strip to the lower edge of each end piece of the case. The top to the hive, which is simply a board with wide cleats nailed to its ends, is used to cover the cases of sections. Each case contains thirty-two sections, four and a quarter by nine and a quarter inches square, and an inch and a half wide. When the sections in the case, first set upon the hive, are one-half finished, the case is raised and another case of sections placed between this and the hive. When the sections last set on are partly finished, another case is set between them and the hive. When the sections in the upper case are finished, the case is taken off and the sections removed. In brief, the empty sections are put on at the bottom, and the finished ones taken off at the top. This is the "tiering up" plan, the best with which the writer is acquainted.

SHADE FOR HIVES:—To secure the best results, hives should be shaded in the middle of the day during the hot weather. To accomplish this, the writer uses a "shade-board," two by three feet in size, made by nailing the butts of shingles to a strip of board four inches wide and two feet long. This board, which is shown at *f*, is placed upon the hive with one edge even with the north side of the hive, and the other projecting beyond and shading the hive in the middle of the day. This allows the sun to strike the hive in the morning and evening. The board is kept in place by a stone.

Among the Farmers.—NEW SERIES, No. 2.

BY ONE OF THEM.

I have been "knocking about" a good deal among the farmers the past month, and have seen things to make me open my eyes. They have not been by any means closed along back, but one can never see so much when pursuing the even tenor of his daily life, as when "on the go." This time I have been among the so-called

"Gentlemen Farmers,"

men who make, in a measure, farming a pastime, who live in town during the winter, or who having other ways of getting money, spend it upon the farm, with little care whether it pays in money or not. They are paid, no doubt, over and again in pleasure, even if their milk and champagne, if they drink either, cost them the same price. I have often said, that I knew no happier men than those who have a good business whereat to earn their money, and a fine farm to spend it upon.

I would by no means say that "Gentlemen Farmers" do not make farming pay. Many do. Not pure and simple farming perhaps, but farming in their way. A successful merchant ordinarily makes a good farmer. So he is just the man to enjoy a farm. A man who can keep a hundred milch cows, and make butter all winter that sells at fifty-five to sixty cents a pound, or one who can sell his heifer calves at an average of three hundred dollars each, and half his bulls at a third of that, has merchant enough in his make up to be satisfied. There are horse farms that pay; sheep farms that pay; fruit farms that pay; poultry farms that pay very well, and a good many milk farms that pay.

Jersey Tests.

The tide of popular favor is setting so strongly in favor of Jersey cows, and their merits are being so rapidly developed, that it is no wonder that they are the favorites among the people to whom I allude. The Jerseys have been valued and enjoyed for their beauty and for their elegant product—firm and abundant butter, but now the excitement of training them for, and conducting their tests is added. As it requires great care, the taking of no small risks, and very considerable expense withal, it is essential that these tests should be undertaken by rich men, and not by men rich only in houses and lands and fine cattle, but in character, and a reputation for accurate, conscientious honesty, which is worth more even to a poor man than all material wealth.

The reader may wonder why a cow that makes twenty pounds of butter in a week, ought to be the property of a rich man, rather than of a poor one. I will tell them at the risk of letting out a secret. Such a cow, when put to her best butter-making pace, must be fed and handled without the least regard to expense. The question is, first, how

much can she be made to eat? Princess 2d "beat the record" as a feeder, as well as a yielder in a week's test. She ate one hundred and forty-two pounds, all told, of clover hay, roots, bran, oats, Indian and oil-meal daily, in order to make her twenty-seven pounds and odd ounces of marketable butter. She cost her owner four thousand eight hundred dollars, and as such cows are selling now, was worth at the beginning of the test, at least six thousand dollars. As a race-horse is often disabled in a race, or in training for one, such a test is too often fatal to the cow from the after effects. In this case, by the mistaken kindness of a visitor to the stable, who fed Princess some apples, she nearly died during a sharp attack of colic. These risks must be taken—guarded against if possible—but the results involve the hazard. In regard to this cow, her wonderful constitution, and recuperative power, is shown by the fact that the very day of the colic, she gave three pounds of butter against four and a fraction on preceding and subsequent days. Mercedes, the so-called Holstein cow, that made that wonderful test last summer, is dead, doubtless from indiscrete handling after her test. So is Naney Lee, a famous Jersey cow.

It is fair to say, their owners sustain a loss of hardly less than ten thousand dollars each, and it is to guard against such results that these cows must be surrounded with every appliance in the stable and out of it, that can promote their health and comfort, while their attendants must be men of great discretion and trustworthiness—fearless feeders, but of good judgment. Such men are hard to find, and when found are worth good wages, and get them. Men in charge of such cows, must have their employers' interests so sincerely at heart, as to be practically incorruptible, for there is no telling what temptations may be presented to them. It is unsafe for a dishonest man to have anything to do with the test of a great cow for butter; he is liable to deceive even himself, as well as his employer and the public. Such a man is quickly found out as a rule, so that on the whole, I think there is reason to place full faith in the astonishing tests which are now from time reported. There is not one of them so far, which has not received and borne well, the severest scrutiny.

Sweet Stables.

I saw Mary Anne, of St. Lambert, a few weeks ago, as it happened, the very day of the completion of the three hundred and ten days, during which she has made eight hundred and thirty-eight pounds eleven and a quarter ounces of marketable butter, and she and her kindred certainly stand in the sweetest cow stable I ever was in. It is made so, I think, by the daily application of air-slaked lime to the floors and passage-ways, in front of, and behind the cows, forming a complete coating to those parts of the stable, not unlike thick white-wash. The floors of the stalls, and the gutters behind them, are not thus treated. Just enough dust arises from this application, to purify the air, while it is otherwise imperceptible, except when the floor is swept, or fresh lime scattered on. It seems to be an excellent plan. No damage comes to the manure, for scarcely any lime comes in contact with it.

When visiting the farms of Messrs. Burnham and McCready, famous for the cows of the Coomassie family of Jerseys, I saw a barn very well altered over. An old barn with its big floor open to the ridge pole, and rows of stalls on one or both sides, is a cold place for fine cows in full milk, during our severe winters. In fact, cows will not stay in full milk long, no matter how well fed in such a place. What is needed is warmth and ventilation. Mr. McCready secured this by boarding up the sides of the hay bays, and putting a ceiling over the floor, allowing plenty of room for a load of hay to be driven in. In this ceiling are three doors that will slide over one another, to give ventilation, and may be easily lifted off when getting in hay. The space which they cover is large enough to give plenty of room to unload, and the result, with double siding, was a most comfortable cow barn, fit for twenty-pound Jerseys. The cows were very hard to beat, and have kept up their flow of milk and yield of butter, as if it had been warm weather.

The Narrow-Leaved Laurel—Lamb-kill.

In January last (page 22) we gave a description of a plant so poisonous to calves, that in some localities it is known as "Kill-calf." Some of our correspondents have confounded that shrub (*Leucothoë racemosa*), with another, which has long been known as poisonous to sheep, and properly called Lamb-kill, and Sheep Laurel. By comparing the engraving given in January, with the one here presented, the differences between the two shrubs will be seen at a glance. The Lamb-kill is *Kalmia angustifolia*, and belongs to the same genus with the showy Mountain Laurel (*K. latifolia*), but is a much smaller shrub, rarely growing over two feet high. It has a wide range, being common on hill-



THE LAMB-KILL (*Kalmia angustifolia*).

sides, and in rocky pastures, from Canada to the Carolinas. Its long, narrow leaves are opposite, or in threes, whitish on the lower surface, and pale-green above; the flowers are light-crimson or purplish, and of about the size shown in the engraving. The experiments of Doct. Thomas F. Wood, of North Carolina, given in the *American Agriculturist* in January, 1883, show that the plant is decidedly poisonous to sheep, but the animal with which he experimented would not eat it voluntarily. His observations were made in autumn, when the conditions are quite different from those in spring, the time sheep are usually poisoned. After having had only dry food all winter, they are attracted by the evergreen leaves of the plant, often the only green thing to be seen, and at that time eat enough to poison them, though they may avoid them later, when green food is abundant. Warm milk and molasses given in sufficient quantities to cause vomiting, is the usual remedy. This Laurel is suspected of yielding poisonous honey; this is a point that bee-keepers should investigate. It seems to be well established that the honey of some related plants produces narcotic effects, and if that afforded by this species is also poisonous, it will furnish another reason for destroying it.

The Sportsman in Camp.

ROBERT BARNWELL ROOSEVELT.

A stove is a convenient thing to have, but not an easy one to carry, if it is not too heavy and does not occupy too much room it is sure to be too dirty after it has once been used. A makeshift can be extemporized wherever flat stones can be had, and will be found infinitely preferable to the ordinary open fire. All that the traveller will have to carry with him, will be two lengths of common stove-pipe, the rest is built at the camping ground, and can be erected in so short a time that the trouble of moving house will not be serious. Having selected the flat stones, lay them up in the shape of a horse-shoe, the sides being about three feet long, and about nine inches apart inside, that is, the fire place will be nine inches wide, or more if desirable. At the further end, the bend of the horse-shoe, the pipe is inserted; it can be held in place by wires to neighboring trees, and a stone placed on top will serve as a damper. All chinks between the stones have to be well filled with clay or mud, or earth banked up against the outside, or what is better yet, the entire affair can be lowered by having a place dug for it. Large flat stones must then be laid over the top and the work is done. One trial will make any person an adept in building it, and it will be found a luxury, that to appreciate, needs only to be tried. This stove can be erected within the tent, if the trench is dug to the outside and covered with boards, and if there is a hole in the top for the escape of smoke; instead of stones sheet-iron may be used for the stove cover.

The angler will often on his lucky days take more fish than he can turn to account, but which he will probably find use for before his trip is over. These can be salted, and of a morning nothing is better than a salted lake trout or blue-fish. Those who have only eaten cod and mackerel, do not know what a salt fish is. Split them, and cut off the head and tail and take out the back bones, bones do no special harm, and are excellent things to buy at twenty cents a pound for the good of trade, but when you are doing your own curing it is as well to leave them out, or keep a separate place for them. Pack the fish, cut to a proper size, in a half barrel or pail, flesh side down, so that whatever of dirt may be in the salt will not get into them, but will remain on the skin. Upon each layer of fish, lay a thin layer of salt, rock salt will answer, or common table salt can be used. Proceed in this way until the fish are all in, or the receptacle is filled, taking care to put enough salt on top to prevent its melting off when it turns to brine and leaving the fish bare so that they will spoil. That is the only risk in the operation; put down in this manner, they will keep in the hottest weather for weeks.

Where the sportsmen intend to remain in one place, the most convenient way of living will be to put up a regular house, either purchased ready to set up with a few bolts, or built by the party out of boards taken for the purpose, if any one is sufficiently skilled in carpentry to direct. Doors and windows are a luxury, although the open tent is considered by some as the more healthy. The "Hoffmire" house, as it is called, is admirably adapted for transportation, and is constructed by persons well acquainted with the necessities of woodsmen. Such extravagances are the exception, not the rule of "summering" in the wilderness, and it is our general fate to be without them. We must sleep in the tent, must cook at the open fire, fight mosquitoes and black flies as well as we can, without nets to keep them out, must endure wet and cold, and learn to rough it and have a good time with the aid of our own resources. Among the principal of these will be a knowledge of some of the simplest rules of the cuisine.

How I Found my Prairie Home.

R. G. NEWTON.

I cannot say positively whether my own inclinations, or the advice of that kind-hearted old philosopher, long since gone to his home beyond the western skies, caused me in the winter of 188–, to dispose of my home and immovables, and come West. Living in one of the pleasantest villages of Southern New York, with a good little home all paid for, a good trade, and plenty of work, you

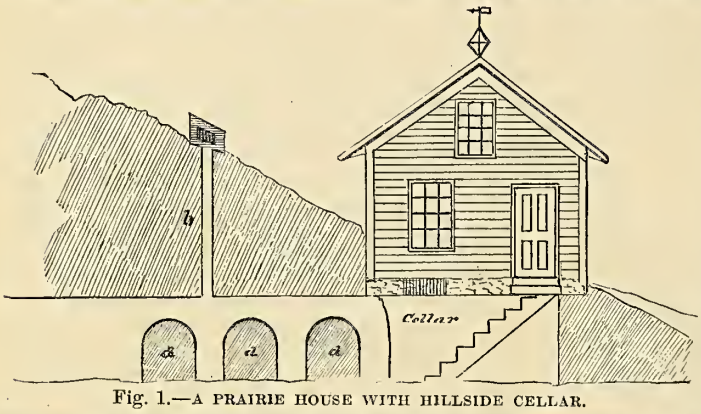


Fig. 1.—A PRAIRIE HOUSE WITH HILLSIDE CELLAR.

may ask why I left all this to come out on the prairies. I had worked fifteen years in the dust and noise of a large planing mill, and all I had to show for it was that house and lot, which was bought at the time real estate was booming. My wife and I had denied ourselves many pleasures to get what we had together, and the prospect for coming years was not a pleasing one. We might be spared to live many years, my wages would give us the necessaries of life, but little or none for the future, when I might not be able to work. In looking around me, I could find many men that old age was crowding out of the ranks, but they had in their best days been as good mechanics as any of us, and among them all but very few (and they were the ones who had come in when the country was new and the town just started), that had saved anything in their years of toil. After many sleepless nights, I made up my mind to do what so many had done before, break off with everything connected with that kind of life, and on the prairies of the great West start anew. I did so, and here we are.

I left New York State in the winter, and went into the Red River Valley of Dakota, where I had a brother in the hotel business. The next question was, where should I locate? I had a good opportunity to see and talk with parties, who had visited many different parts of the Territory. Just then the Devil's Lake country was having a "boom;" there was the Mouse River country, and many other localities open to settlers, but I wanted to build my future home where I could raise a variety of field crops, corn especially, and not live without

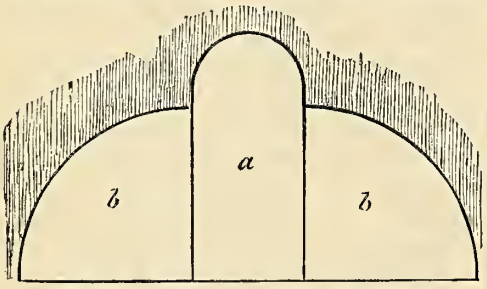


Fig. 2.—CROSS-SECTION OF THE CELLAR.

a garden. I decided to have a look at the country between the Jim River and the Missouri. So in the middle of March, with between two and three feet of snow on the ground, I started. In three days I was in Aberdeen, and passed the last snowbank in the cuts through the hills in Grant County. At Aberdeen I found the "booming" point was on the Missouri River, but as it necessitated a ride of a hundred miles over the prairies (with one stopping place), in an open or lumber wagon, and during March weather, it was not what I wanted. I went to the Huron district, getting what information I could, started on the road towards Pierre, and stopping at St. Lawrence, found a team just starting north with two young men, who were going up there to locate. Joining them, we rode about forty-five miles almost due north, getting to our destination about seven o'clock. After supper, I made arrangements with a "locator" to be on hand early in the morning with a team, and show me some of the unoccupied land near the town, which was just starting. After this I was shown to my sleeping-place, which was half of one end of a bunk, twelve feet long, accommodating four, with one just like it built above. Morning came, and getting up, I counted twenty-three lodgers in that room, about eighteen by twenty feet square. When going down stairs, I had to step over two or three persons who were still snoring, under buffalo robes, coats, and any other covering obtainable. After breakfast came the driver, who took me over several claims; I went back to the hotel, and at nine o'clock, the stage running to the nearest rail road point came up, and off we went. I decided on my way down to enter my filing on the first claim we went over.

I went to Huron Monday, but could not get my filing made out until it was too late to get it in that day, but I was on hand the next morning with many others. I found the piece was not taken, my entry was accepted, and I started again for the North, intending to spend the summer with my

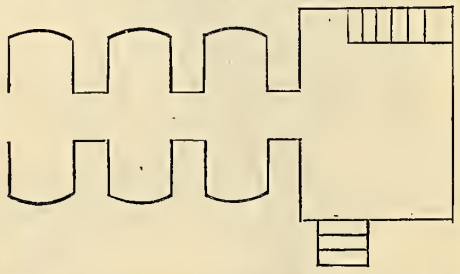


Fig. 3.—FLOOR PLAN OF THE CELLAR.

brother, and come on to my claim in the fall, which, by making a Homestead entry, I was enabled to do.

LOCATING THE HOUSE AND STABLES.

Claim shanties are usually built on the point nearest to the adjoining town, but many other parts of the farm may be much better for building sites. Shelter from the winds, of which those from the north-west are the most prevalent, is very desirable. Locate the house and stables within easy access to water. By digging deep enough, well-water will be reached almost anywhere. If the well is necessarily located some distance from the house, you can erect a wind-mill, lay a few rods of iron pipe and have a steady supply of water at the barn and house.

In Central Dakota the land is sufficiently undulating to afford sometimes a choice of several locations on a quarter section. A rise of the ground of fifteen to twenty-five feet will shut off the heavy winds, and by placing the buildings at the foot or a little way up the rise, and planting the top to evergreens, mixed with other trees, you will not feel the winds at all. The advantages a hillside offers for a cellar are not to be overlooked. By digging down a little way, you can then excavate directly into the hill, making a hall or cutting about four feet wide, and as long as desired. By digging out bins at the side, roots and other crops may be secured from frost. Fig. 1 shows a dwelling, with a cellar dug into a hillside. The side excavations are at *a*, *a*, *a*, and a ventilator, *b*, rises from the main part. Fig. 2 is a cross-section of the underground cellar, *a*, showing the side bins, *b*, *b*. The floor plan of the cellar is given in fig. 3. The hard subsoil makes such a cellar easily constructed, and by leaving a space of solid earth between each bin of two or three feet, you will not require to use a stone in the whole construction. It will require a good, tight door at the entrance of the gallery from the cellar, and it may be necessary to provide for ventilation, which can be done by digging one or more holes from the top of the hill down into the gallery. Cover the ventilating shaft tightly with a large box, not easily overturned. The top should be built to shed the rain, and holes a foot across cut in the sides and covered with wire cloth, to keep out vermin. If the roof extends over the sides considerably, and the holes are close under the roof, but little rain will beat in. This box can be removed, if necessary, after freezing weather sets in, and a board covered over the hole, with some earth thrown on it to keep it in place, but if there is much thickness of earth over the cellar, it may be better to leave the ventilator open. This cannot be done in many parts of Northern Dakota, as the water would fill the cellar the first winter.

Cider-Making Without a Press—Diffusion.

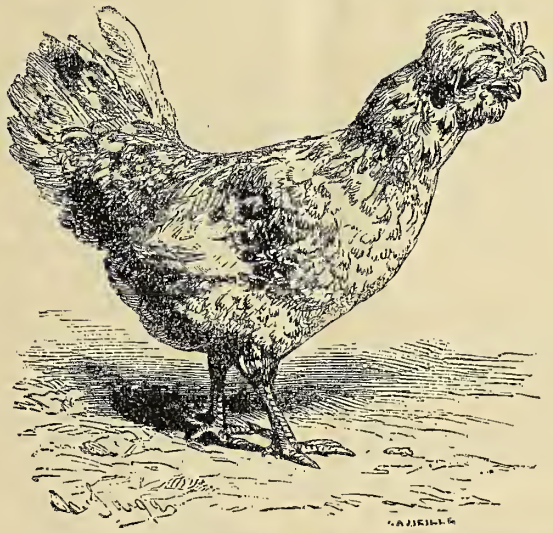
The method of extracting sugar from the beet root by dissolving it out with water, or diffusion, as it is called, has been applied to cider making in some districts of France. As the method is very simple and is practicable on a small scale, some of our readers may wish to make a trial of it. A cask or keg of any convenient size has a false bottom in which are numerous holes, and is raised a few inches above the real bottom. The apples are ground, and packed in the cask on the false bottom, first placing a coarse cloth over it. At the top of the apples is a follower. Water is poured in sufficient to cover the apples, and the whole allowed to stand for twenty-four or thirty-six hours. At the end of the proper time the liquid is drawn off through a spigot in the cask near the bottom. Water is again added, allowed to stand and drawn off; this is repeated once more, making in all, three diffusions. The resulting liquids are mixed together and treated like new cider made in the usual way. If not rich enough sugar may be added. By this method cider may be made without expense for press or mill, as the latter, though convenient, is not necessary, as the apples may be brought to a pulp by pounding them in a barrel or strong tight box. This process leaves the pomace in better condition than that from the press, whether to feed to the pigs or to add to the manure heap.

Salmon Fresh from Oregon.

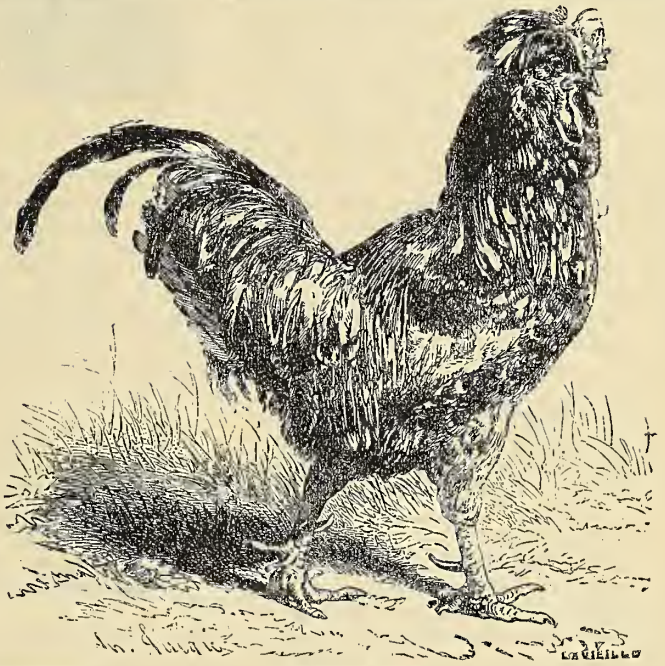
The latest immigrant is the Oregon Salmon. There has been inaugurated the past spring a system of shipping in regular cars, the world-famed salmon of the Columbia River, to the Eastern markets. The "Chinnook" salmon is a stranger at the East; the "steel-heads," that are not considered choice on the Pacific Coast, are the only salmon from the Western States that have reached eastern markets. The "Chinnook" does not commence running until the middle of April. The salmon fisheries of the Columbia River are mammoth enterprises to-day. There are fifty large canneries between Astoria, at the mouth of the Columbia, and the Cascades above Portland. Three average salmon fill four dozen cans, each holding a pound; there are forty-eight cans in a case. When this industry began, in 1866, a case of salmon cost sixteen dollars; to-day, the current price is four dollars. There are two thousand boats, including a dozen steam-tenders, employed in this business alone on the Columbia River. A new impetus will be given to the industry by the new enterprise of shipping the fresh salmon to the Eastern States.

Houdan Fowls.

It is very interesting to see what different styles of fowls the various peoples of the world have produced, no doubt chiefly by selecting those for breeders, which have been for generations regarded as best adapted to their own use or for market. This has doubtless been to some extent influeneed by the original stocks which they had to work upon, largely also by elimatic influences, but chiefly by the needs, fancy and eaprice of the people. Thus the French fowls differ from the English, the Dutch from both; the Spanish and those of the Mediterranean Coast are of a very different type, and so they vary throughout India, China, and Japan. There is often a style and air about the fowls, which reminds one of some type of character among the people, and this is especially true of the French and Spanish fowls.



A HOUDAN HEN.



A HOUDAN COCK.

Engraved for the American Agriculturist.

We select for illustration one of the best known and most useful French breeds, the Houdan (pronounced *hoodon*—the last syllable like *don* in don't). This breed combines three exceedingly useful characteristics. The birds have few if any superiors as table fowls; the eggs are large, white, and abundant, the hens being persistent layers and non-sitters, and the chicks develop very rapidly and are early ready for market as broilers. In point of hardiness and general utility there is difference of opinion, but all agree that they are the hardiest of all the French breeds, both in this country and in England. The idea that they are not hardy comes from the fact, that imported fowls do not acclimate easily if at all, but American bred Houdans appear to be as hardy as any. It is not difficult to get such.

The Houdans are white-skinned fowls, with pinkish or mottled legs, and a useless fifth toe, like the Dorkings. This is no serious objection to them, and is one of the criterions of purity of blood. Our illustrations show the fowls very well. They are above medium size, with black, white, and gray or mixed feathers, evenly but irregularly mingled. They are well formed, full-breasted, have moderate powers of fiight, are domestic, but good foragers. They have top-knots of medium size, which do not obseure the sight as do those of the Polish fowls. Their combs are branching, somewhat like the antlers of a stag, and thus help to keep the crest-feathers out of the fowls' eyes.

They will do well with reasonable care in any dry, warm, clean location, and give great satisfaction, being fully equal to the Dorkings for the table, though not so large, and quite as hardy. These fowls, when well fattened by a French poulterer, surpass anything we ever see in our markets. They are drawn, the thighs thrust back beneath the skin, the wings tucked behind the baek, and these are bound with bandages (that leave no mark), upon a properly formed board to get cold and ready for shipping or exposing on the market stand. They look worth several cents a pound more than if shipped and exposed for sale in the common New York way, which is the way of the greater part of the country, except New England, where fowls are drawn before marketing.

Poultry Keeping as a Business.

We are constantly in receipt of letters like the one below, from persons who, with a very small capital, seek to better their mode of livelihood, and become more independent. Far be it from us to discourage them, but before undertaking poultry and egg raising as a new business, they should know for certain that they will find it very hard for a time, and may exhaust both themselves and their capital before they get started. Mr. D. J. Quinby, writes from Philadelphia, Pa., as follows:

"I can control about one acre and a half of good grass land in Central New Jersey, with a small barn, dwelling house, and a good well of pure water on it. The land in question slopes to the northwest, and to the south. How many chickens can be raised profitably on an acre and a half of land? Could a person get a moderate living from them, making a business of it? How much money would be required to start a run of dimensions given, including incubators, etc.?—I can raise about three hundred dollars. What stock of fowls do you consider preferable, all things considered?"

In answer to these questions we have to say, first, the profits of poultry raising do not depend so much on raising chickens, as upon the production of eggs. This season is too far advanced to do either this year, but summer or autumn is the proper time to prepare for keeping laying hens, and for a harvest next winter. No one can give an exact answer to your question, but we say in general that thousands of chickens may be raised with proper appliances and care. The matter of profit depends upon so many contingeneies, that it is impossible to say whether one hundred or ten thousand could be raised with profit. Second: A thousand laying hens could be kept through the winter on the surface named, and ought to lay thirty eggs each on an average, and these should net the raiser two cents each, which would amount to six thousand dollars. Still though one thousand hens might do very well in winter, keep one another warm, and with care and cleanliness be healthy, yet one hundred and fifty hens would overstock the place in summer. It would be easy enough to raise one thousand chickens, unless they should suffer from some epizootic malady, which might sweep them off by scores. The approved plan is to use very early hatched pullets as layers, and to begin as early as February to kill them off as they stop laying, and to clear the yards before broilers are plenty, and the price of fowls falls very much. Third: As to capital. A good lot of young fowls for winter laying, could hardly be obtained for less than one dollar a head, and those from which one would expect to raise chickens for next year's layers, ought to cost double that. So really the three hundred dollars would not go far, still, if a person has a year or so to get ready in, and can live and work for that time without encroaching on his capital, perhaps a start might be made, even on three hundred dollars. The things to do would be to put up a building for the fowls, light, dry, and warm, half underground perhaps, and well banked up with earth in winter; to secure chickens whenever it is possible. You would have to do your own carpenter work, and then a house for two hundred hens would cost you fifty dollars. A winter house for that number of hens, need not be more than twelve by twenty-five feet on the ground, and high enough for a man to stand up in. In close quarters they keep one another warm, and lay better. Fourth: The best fowls for eggs, all things considered, are Leghorns. Probably the best for general purposes are Plymouth Rocks.

The Eatable Podded Peas.

W. B. Jones, Henderson, Ga., writes us with reference to the eatable podded peas, figured and described in April last, that a variety of them has been cultivated in his vicinity for eighty or a hundred years. Besides the names given in the article referred to, it is with him called "salad pea," and "snap pea." Mr. J. gives a method of cultivating these and other peas, avoiding the trouble and expense of "bushing," which will be useful to many others in the Southern States. The peas are sown along the rows of cotton stalks of the growth of the previous year. In the latter part of December, or in January or February, the soil is plowed away from the stalks, running close to them; the manure is distributed in the furrow, and the earth turned back over it. In the bed thus formed, the peas are drilled in, a row on each side of the stalks, and as near them as practicable. The stalks are strong enough to bear the pea vines until the crop is mature. Mr. Jones says that they have their first picking about April 10th, and that the pod is very brittle, snapping off short like a German Wax-bean. The peas are used when young as a salad, and when sufficiently mature, are shelled like ordinary peas. When the crop is allowed to ripen, the stalks and vines are pulled up, and removed to a shelter.

The Creamery and the Farmer.

PROF. S. R. THOMPSON, NEB. AGRICULTURAL COLLEGE.

Among the various ways of diversifying production on the farm, the creamery has many advantages. It yields quick returns. Many creameries pay cash every month. A farmer who lacks capital to stock his farm and must wait for the natural increase to give him bis return, may, by investing in cows, get a return in a few months. He thus, in a measure, gets the advantage of the "nimble sixpence." The results are more certain than in most other lines of farming. Good butter is always in demand for cash. The product being sold as fast as made, the risk of a falling market witb a full stock on hand is largely removed. If extreme fluctuations in price come, they affect only a part of the year's production. The business is fairly remunerative. The profits, as is usual with a business in which the element of risk is largely removed, are not excessive, but being steady, may in the long run be better for the farmer tban a more speculative line of work in which there is a promise of larger profits. In presenting some points connected with the question of profit, I cannot do better than give a statement made to me by Mr. S. C. Bassett, of Buffalo Co., Neb. The figures are taken from his books, and so far as tbey are an estimate, it is that of an intelligent, cautious, and trustworthy farmer. This is the summary for 1883:

No. of cows milked	12
No. of calves raised	12
No. of inches of cream	2271
Average number of inches per cow	189¼
1291 inches of cream, @ 16 cts	$206.56
980 " " " @ 20 cts	196.00
Total received for cream	$402.56
Per cow	$33.54

It should be stated, that the cows were well fed and cared for in the best manner. Besides bay and grass, each cow was fed sixty-five bushels of corn during the year. The estimated value of the food of one cow was as follows: Pasture in summer, two dollars; hay in winter, three dollars; sixty-five bushels of corn at twenty cents, thirteen dollars. Total, eighteen dollars.

Tbe other sources of income from the cow, besides the cream were the skim-milk and the calf. Mr. Bassett estimates that the skim-milk judiciously fed, would produce or be worth eighteen dollars, and the calf at three days old would bring five dollars. The skim-milk, properly utilized, will therefore pay the cost of feeding the cow, leaving the value of the cream sold, thirty-three dollars and fifty-four cents, and the calf five dollars, or a total of tbirty-eight dollars and fifty-four cents, to pay for interest, cost of labor, and net profit.

Tbis it seems ought to be on the whole a satisfactory showing. A farmer who in addition to his other farming operations keeps ten or twelve cows, is able to count on a cash income monthly of something over thirty dollars at the lowest estimate. Farmers who bave the requisite skill to make good butter, and who also live near large towns, can often do still better than this, by engaging their product to regular customers, and delivering it as needed. But where there is one farmer who can do this to advantage, there are two or three who could sell cream to a creamery with much greater profit. It would seem that a well managed creamery ought to be of great advantage to any rural community, and the rapid extension of the creamery system throughout the West confirms this view.

It is a great mistake to suppose that any kind of management will produce such results as are indicated above. The following are some of tbe essential conditions of success in the business of furnishing cream to a creamery: The cows must be liberally fed; valuable production comes from abundant food. There must be tbe greatest regularity in feeding, watering, and milking the cows. The cows must be good ones. These cannot always be bought, and the successful dairyman should raise his own cows as fast and as far as possible. He can thus be in a position to select the best to keep, and sell the others. The whole business must be under the immediate direction and care of the owner, or of some painstaking person who has a pecuniary interest in the returns from the dairy. It will rarely be possible to have the work done successfully by hired help alone.

A Small Poultry House.

Mr. L. E. DeGour, Morristown, Pa., sends us sketches and description of a small poultry house,

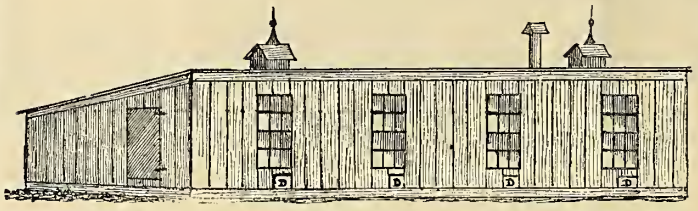


Fig. 1.—EXTERIOR OF A SMALL POULTRY HOUSE.

from which the accompanying engravings are made. The house is ten by thirty feet, seven feet high in front, and five feet at the rear. The boards are "common thirds," with lath placed over the cracks. The roof is tin, with two ventilators. Tbe yard for the young chicks has a board floor, to keep them from tbe damp earth. This house will accommodate seventy-five birds. The materials cost about fifty-three dollars. Mr. DeGour, though

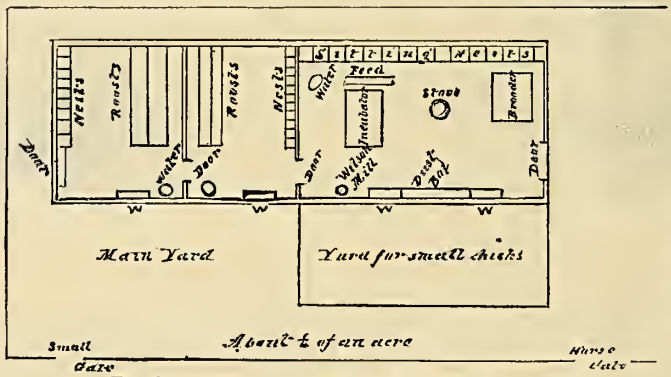


Fig. 2.—GROUND PLAN OF THE POULTRY HOUSE.

not a carpenter, built the structure, and is sure any one at all accustomed to the use of carpenter tools, can do the same from the accompanying plan.

Dairy Questions.

Messrs. Waltz & Wæner, of Montana Ter., ask us several questions on dairy matters. Our answers to some of them will indicate the questions. It takes a little over eight "pounds of milk to make a gallon," and about two gallons of good "milk to make a pound of butter." Yet it will require three or even four gallons of some milk for a pound of butter. It will not pay to make butter, except for your own use, even at sixty cents a pound, if you can sell the milk at twenty-five cents a gallon, unless indeed you have a sale for sweet skim-milk in some form, at eight to twelve cents a gallon. Jersey cows are generally below medium size, and are no fighters. They would be underlings in a herd of "common ranch cows." They will yield on an average eight or ten quarts of milk a day for six to eight months, and during this time ought to average a pound to a pound and a quarter of butter a day. The "amount of butter made from noted cows," has in some cases exceeded three pounds a day, week after week. It is a very good one that yields fourteen pounds a week. Jersey cows fit to ship, would cost you in the East two hundred and fifty to three hundred dollars each, in carload lots. Orange carrots are better than white, because they help to keep up the color of the butter in winter, and are nearly as productive. Carrots and mangels mixed make excellent food for cows in winter, especially if well sprinkled after slicing with equal parts by weight of bran and corn meal.

Forest Commissions and Agriculture.

The outcome of the protracted discussion in the New York Legislature on the Adirondack question, is a bill which, at tbis writing, has passed the Senate, and we hope will pass the Assembly. It provides for three Commissioners, to be appointed by the Governor with the advice of the Senate, to hold office respectively two, four, and six years, thus creating a vacancy every two years. Tbey are to take charge of tbe forest lands now belonging to the State, and of any that may hereafter be acquired; to prevent damage to them by fire, trespass, etc., and to report to the Legislature each year on or before Jan. 15 of tbeir doings, together with such information "as may be useful in preserving the forests upon State lands, and maintaining the supply of water derived therefrom for the use of the State." The bill does not, it will be noticed, provide for an Adirondack Reservation, as did several of those which came up in the early part of the session; but simply for a Commission to care for the forest lands, and for the waters which flow from them.

The main feature in the bill, which makes it desirable to have it passed, is in the clause providing for a report. The annual value of our forest products, according to the last census, was seven hundred million dollars—more than ten times the value of all the gold and silver produced, and more than three times that of the entire mineral output, precious metals, iron, and coal. This enormous total is merely the value of the raw material, and not that of the manufactured articles made out of it, and therefore the lack of forest products means stoppage of these vast industries, all of which create a market for farm produce, and furnish articles needed for farm use. When we remember that we are rapidly nearing the exhaustion of the greater part of our available supply of forest products, we see that farmers have a very direct interest in forest preservation. S. W. POWELL.

Short Timber and Wood Supply.

The terrible devastation by the floods in the Valley of the Ohio, the last winter and spring, is a text from which many of our papers are preaching sermons on the waste of our woodlands, and prophesying greater evils in the future. The case is by no means as desperate as the pessimists would have us believe. New England is among the oldest settled portions of the country, and in this section the danger is already passed, if it ever existed, and intelligent observers assure us that there is more woodland to-day, than there was fifty years ago. More than a quarter of the land is in wood. The white pine, one of our most valuable timber trees, may not be so plenty or as large as in the olden time, but it still exists, and furnishes large quantities of lumber, as the shoe trade of Eastern Massachusetts attests. Timber land cleared and left to renew its growth, is ready to clear again in twenty-five or thirty years. And so far as the holding of snow and rain is concerned, it is about as valuable as the original forest. The shade is complete, the leaves and leaf-mould are retained, and floods are no more numerous or destructive than they were in the early settlement of the country. There are two forces steadily operating to conserve our forests, for the most part overlooked by those who prophesy evil from our waning forests. The first is the enormous and steady increase of the production of coal, and the increase of facilities for its distribu-

tion. Steamboats, locomotives, and factories, that once used wood, now use coal almost exclusively. Even farmers within one or two miles of a railroad depot, now use coal and find it cheaper than wood, especially in winter, though the wood grows upon their own farms. And this use of coal is increasing in the rural districts every year, and nothing is likely to prevent its increase in the future. Then the drift of our population away from the rural districts into cities and villages, has an important bearing upon the increase of woodland. The census shows that in the last decade, the exclusively farming towns of Connecticut lost over twelve thousand inhabitants, while there was a steady increase in the cities and villages. This drift is not likely to be arrested by any songs the poets can sing. It means abandoned farms, lone chimney-stacks where farm houses once stood, rocky pastures and meadows turned into thrifty forests. These are a good investment to their present owners, as woodland, the annual growth paying interest and taxes, without outlay for labor. Self-interest is likely to conserve our forests with or without floods. This drift of the population in due time will reach the newer States.

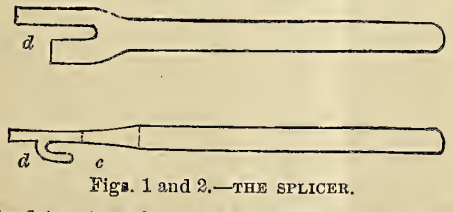
Hanging Nest Boxes.

It is cheaper to construct continuous rows of nest boxes, nailing them securely to the sides of the poultry houses, but they afford a snug retreat for lice, mites, and other insect enemies of fowls, from which it is difficult to dislodge them. By having movable boxes the cleansing process is facilitated, and extreme neatness can be maintained. A good box that is easily made should be from twelve to fourteen inches long, eight to ten inches wide and about eight inches deep, the part by which it hangs being about four or five inches higher. The ends may be made of inch white pine and the front, back, and bottom of half-inch pine, all planed stuff to give a neat finish. A good coat of paint will add to the appearance and go far towards preventing vermin from infesting it, otherwise apply whitewash, inside and out, before nsing. To prevent the back from being broken, securely fasten two inch and a half cleats on the outside. Make two holes, through which the stout screws pass when the box is in place.

A very readily made hanging box is made as follows: The back and bottom are constructed of good, planed inch pine, the hight of back being twelve to fourteen inches. The front of the box is made of the sides of a high cheese box, the width (extreme) from back to front being from eight to ten inches. To prevent the front from coming loose where it is fastened to the sides, it should be nailed on with a strip of tin or heavy leather. D. Z. E.

A Wire Splicer.

Mr. A. F. Kemman, New Hampton, Iowa, sends us a description with sketches of his wire splicer. This is an age of wire, as is evident from the net work of wires in the cities, and the millions of miles of barbed wire in fences in the country. To make this splicer, take a bar of half inch, round iron, nine inches long. Heat about three inches of one end and hammer it flat until it is one inch wide. With a cold chisel cut a one-fourth inch slot a quarter of an inch from the right side and an inch deep. Figure 1 shows the slot. Bend the part marked *d*, so it will be a quarter inch from



Figs. 1 and 2.—THE SPLICER.

the flat part, as shown in figure 2 at *c* and *d*. The lower part of the slot *c* should be about a half inch from the bend at *d*. Smooth the parts with a file, thus completing the tool. To use it let *e* and *f*, figure 3, represent two wires to be joined. Bend the ends so they are nearly at right angles with each other. Hold them with pinchers at *g*; place

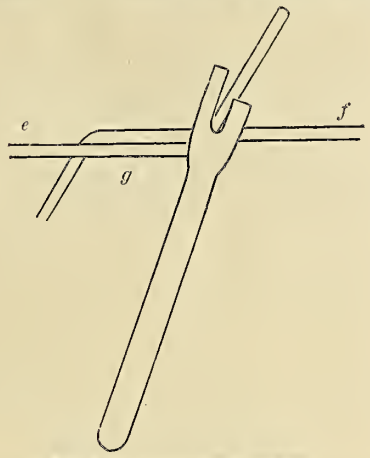


Fig. 3.—MAKING THE SPLICE.

the hook of the splicer on the wire *f*, while the wire *e* falls in the slot. Twist the pieces around the wire *f* when one half of the splice is made. Repeat the operation for the other end. Figure 4 represents the splice completed. Use about four or five inches of each wire to twist around the

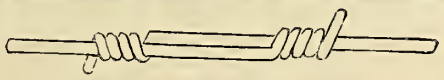


Fig. 4.—THE SPLICE COMPLETE.

other. This makes a neat, easily made splice for either plain or barbed wire. The splicer is so simple that any blacksmith can quickly make it at very little cost.

Convenient Portable Tool Box.

An old dry goods or shoe box will supply materials, and a little rainy day or evening work will construct a good tool box, very convenient not only for keeping the tools in, but also for carrying them out to the field, for repairing fences, etc. For lightness, use half inch boards for the sides and bottom, and those a little thicker for the ends and handle. The box may be of any size. The following dimensions will admit hand-saws, axes or adz: End pieces eight inches wide, sixteen inches high, tapering from six inches above the bottom to two inches at top. Side pieces six inches wide, thirty-four inches long. Bottom piece six by thirty-two inches. Top piece, or handle, straight-grained pine or spruce, or ash if available, corners rounded. The handle may be nailed in, or fitted to small auger holes and tenoned. Adapt the dimensions to the tools; a common method is, a side compartment, one and a half by thirty-two inches for saw and square; nail-boxes at the ends, with a partition in one of them for an axe blade, the handle to lie along one side. Central portion for hammer, chisels, augers, etc. For a neat job, plane all, and fasten with finishing nails. In such a box the load is balanced; it is easily carried by one man, or between two, each taking hold of one end of the handle. A. F. K.

Shoulder Pads.

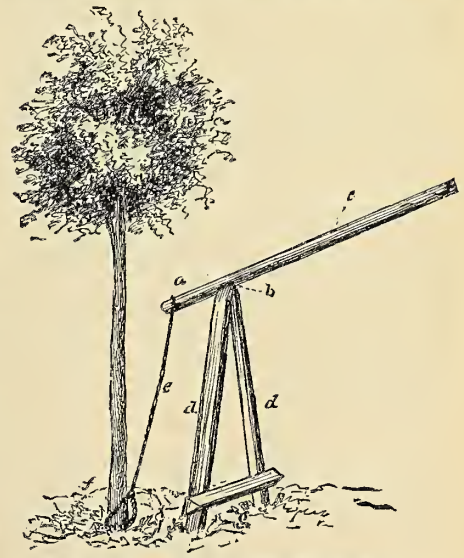
Mr. H. C. Blackwood, Washougal, W. T., writes us as follows: I have found a collar-pad made of new, undressed sheep-skin, to be the best preventive of and remedy for sore shoulders in horses. Cut out two pieces about the shape of, and somewhat larger than the faces of the collar. Fasten one edge in the groove opposite the hame groove, with the wool next to the collar. The skin seems to have some healing properties. This pad is quickly and easily made, and is much better than most of the pads sold by the harness makers. One set will last an entire season. I have used these pads a great deal in threshing, which work is very liable to gall the shoulders of horses, and have found them superior to all other kinds.

Sweet Potatoes in Northern Gardens.

Within a few years, the cultivation of the sweet potato has extended northward, and it is now raised successfully as far north as Central Michigan. Those who wish to undertake its culture on a small scale, will find it cheaper to buy the plants, or sets, than to raise them. In cities the seedsmen offer the plants, and there are several who advertise them. They bear transportation well, and may be sent by mail or express. In Northern localities it is best to raise them on manured ridges. Upon the unbroken surface of the soil distribute well decomposed barn-yard manure in lines, or strips, three feet apart, the manure strips being about a foot wide and three inches thick. With a plow, turn a furrow from both sides, to cover the manure and form a ridge over it. Dress up the ridges with hoe and rake, and plant the potato sets upon the top of it every fifteen inches. If the planting is done in a dry time, make the holes with a trowel, fill them with water, and when this soaks away, set in the plant. If the soil is fairly moist, watering will not be needed. The plants should be set deep in the soil, leaving but one or two leaves above the surface. Should a late frost or an accident destroy the portion above ground, some of the eyes below will start and replace it. The sides of the ridges and the spaces between them should be kept clear of weeds until the growth of the vines covers them. The variety most generally grown at the North is the Nansemond, though there are one or two others for which greater earliness is claimed. When the vines get large, they will throw out roots at each joint; this should be prevented by moving them, by running a rake-handle or some such stick under the vines and lifting them from the earth.

A Convenient Tree-Lifter.

A large percentage of trees transplanted from the forest, die on account of not having a sufficien quantity of roots. The engraving shows a contrivance to aid in lifting trees in good condition. Join at the top two pieces of two by four scantling, four feet long, and nail a cross-piece about six inches from the bottom. Attach a piece of chain, *c*, to one end of a lever, *c*, which is notched at *b*, so as to work on the pieces *d*. To use the lifter, take a crow-bar and punch a hole under the root of the tree to be dug, pull the chain through, and hook it around to form a loop. Cloth or old rags may be



A DEVICE FOR LIFTING TREES.

placed in the loop, to prevent injury to the tree. Cut a circle, *f*, around the tree with a sharp spade. Then let one person pull on the lever *c*, while the other digs. Trees may be very quickly lifted in this manner, and without straining a person as when pulling by hand. The contrivance may be carried by one person. When a large quantity is to be dug, a boy may be sent ahead to make the holes for the chain. JNO. BARTLETT.

A Fence Board Holder.

Figure 1 shows a contrivance for holding fence boards against the posts, at the right distances apart when nailing. A two and a half by two and a half inch piece of the desired length is taken for the upright, *a*. About its center is hinged the brace, *c*. A strap hinge, *b*, or a stout piece of leather for a hinge, will answer. Blocks or stops, *d*,*d*,*d*,*d*, are nailed on the upright *a*, at the required distances, according to the space between the boards on the fence. The bottom boards of the fence are nailed on first. The bottom block of the board holder rests upon the bottom board, and is held in position by the brace *c*. The boards can be placed in the holder like putting up bars, and are guided to their places on the posts by the blocks *d*, *d*. The boards can now be nailed on the posts, and the holding devices moved for another length. When the boards are too long, they can be pulled forward a little, and the end sawed, and pushed back to place. One man using this contrivance, can nail on nearly as many boards in a day, as two persons with one to hold the boards in the old way. Figure 2 shows the manner of using the fence board holders.

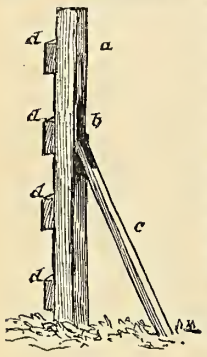


Fig. 1.

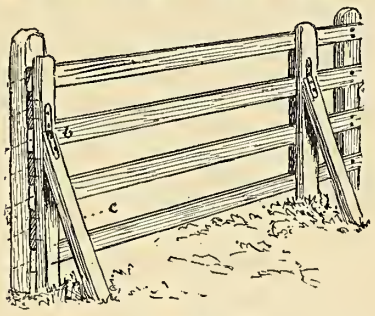


Fig. 2.

Animal Ailments.

DR. D. D. SLADE.

SHORTENING OF THE TENDONS.—Mr. A. N. Brainard, Carhondale, Ills.—The shortening of the tendons, or cords in the legs of the horse, is due to previous inflammation in the parts, the result of strain and over-exertion.—In the early stages, a long period of rest at pasture with an occasional blistering, may serve to restore the tissues to their natural condition, if they have not been too seriously injured. A high-heeled shoe may facilitate the cure, by throwing the tendons into a state of relaxation. After the tendons have become permanently and rigidly shortened, however, only the severing of the cords by the knife, can give any hope of a permanent cure. The operation should be performed by a skillful surgeon, and the animal cannot be put to hard work for several weeks afterwards. Although the operation is a simple one, its results are often far from satisfactory, and this fact must be considered before it is undertaken. There is always a tendency to contraction of the tendons again, in spite of the means employed to overcome this condition.

PARTURITION FEVER. MILK FEVER. PARTURIENT APOPLEXY.—Mr. W. L. Fulton, Pioneer, Ohio.—These names are given to a diseased condition, which may attack cows within twenty-four hours after calving, and almost invariably proves fatal. The disease most frequently shows itself in animals that are large milkers, and are inclined to a fullness of blood, and that have been well fed previous to calving. The symptoms may be, at first, great dullness, stupor, heat of head and horns, followed by delirium, or the delirium may be absent, and loss of power over the limbs, accompanied by paralysis of intestines and bladder, and inability to rise. Whatever may be the particular condition of the animal as shown by the symptoms, it is dependent upon the peculiar state of the system at the time of parturition. Cows, which show a tendency to plethora, must be kept upon a low diet for weeks before calving. The diet should be of a laxative nature. Great attention should be paid to cleanliness, and to proper ventilation of the premises in which they are kept. Particular care should be taken, that they are not allowed to have access to luxuriant pasturage. The disease having declared itself, the first and most important step is to administer a full cathartic, which should consist of two pounds, at least, of Epsom salts. If insensibility has occurred, give this by means of the stomach pump, and after a few hours the action of the purgative may be assisted and hastened by foments of warm soap-suds every fifteen to twenty minutes. If there is delirium with heat of head and horns, apply cold water, or bits of ice to these parts. Rub the body and extremities constantly, and draw off the milk frequently. The strength must be kept up by the aid of stimulants. The following answers an excellent purpose: Aromatic Spirits of Ammonia, two ounces; Ground Gentian, one ounce; Ale, one pint, to be given every two hours. Coldness of surface and of extremities must be counteracted by suitable coverings. It is important to maintain the erect posture, if possible. The chances of recovery under any circumstances are small, but this fact should not prevent us from using every exertion to overcome this malady. If recovery occurs, the animal should be fattened for the butcher, and not allowed to have another calf, unless the cow is very valuable, in which case great attention should be paid to the means for prevention of the disease.

DIARRHŒA IN FOWLS.—W. J. Hess, Goldendale, Washington Territory.—It would be difficult to form a correct diagnosis of the cause of death in fowls, without knowing more of the symptoms which they presented. The enlarged and peculiar state of the liver found on the examination of one fowl, does not prove that others were similarly affected. The length of time, from one to four weeks, during which the birds were ailing, precludes the supposition of cholera. Diarrhœa in fowls may be due to a variety of causes, among which may be mentioned improper food, inclement weather, change of diet, etc., or it may be a symptom of contagious disease. Unless long continuous, it is not worth while to resort to remedies, except to very simple ones. A complete change of food may often effect a cure, such as giving soft boiled rice, barley-meal, or barley. To these first two, may be added a little powdered chalk, or a few drops of laudanum. If this is not sufficient, give five grains each of chalk, rhubarb and pepper, to which may be added half a grain of opium in the food twice a day, or perhaps better still, in a pill. Sulphate of Quinine should be added to the drinking water. To whatever cause the disease may be due, the affected birds should be separated from the healthy. The house and yard should be thoroughly cleaned and disinfected, by washing walls, perches, floors, with water, to which is added about six drachms of Sulphuric Acid to the gallon, by means of a common broom or brush. If possible, the healthy birds should be removed to new quarters for a time.

DEATH OF YOUNG PIGS.—Mr. Geo. W. Osborne, Hamilton, Madison Co., N. Y., writes us that he has lost two more pigs, three months old, from some obscure cause. For the first month he fed them on ground feed, corn and oats. Since then has been using cotton-seed-meal in addition, gradually increasing the quantity, until he reached the proportion of two of feed, to one of the meal. The pigs ate about twelve quarts of the clear feed daily, but only half of that amount of the mixture. The pigs were well housed and littered. Have had no clear water to drink, and very little salt. The post-mortem examination showed considerable inflammation of the digestive organs.—It is fair to presume from the appearance presented at the examination, that the cotton-seed was the cause of death, being an inappropriate article of diet for young swine, on account of its extreme richness in albuminoids. If given at all to young animals, it should be in very small quantities, and its effects upon the system carefully watched. We know of one case at least, where death of a pig was produced by an excess of this food. Clean water is essential to the well-being of swine, as it is to other animals, and experiments have abundantly shown the value of salt, not only for the general health of the pig, but also as contributing to the fattening process.

WEAKNESS IN HORSES.—A subscriber from Oil City, Venango Co., Pa., writes us that he has a horse eight years old, which appears to be weak in the hind-quarters, sweats easily when worked, and staggers about.—The animal is suffering from general nervous debility, exhibited most especially in the hind-quarters, and due most probably to previous sickness, from which he has never entirely recovered. Whatever the cause the treatment must consist of giving the best food and plenty of it, oats being preferable to corn. Great attention should be paid to keeping the skin in the most healthy condition, by proper grooming and plenty of friction. Good quarters and good ventilation are essential, also a moderate amount of work, with no excess. Give half an ounce of Powdered Gentian in his food twice a day. Treat the animal patient just as you would a person who is weak, and not yet recovered from some previous illness.



Productive Idaho Valleys.—The valley world around Cauldwell is one of the western wonders. Boise Valley stretches out in the purest atmosphere, a distance of eighty miles of the richest available soil, interlaid with springs, rivers, and geyser wonders as well.

Fayette Valley, a semi-Swiss scene, takes in one hundred miles of the best meadow lands of the Territory. The Malheus Valley, seventy miles in length, holds in its precious soil and area, all possibilities to the farmer and fruit-grower.

Boise and Fayette Valleys are bordered and interspersed with timber lands, that would put Michigan forests to shame. Everything that can be produced from the soil in Colorado or the Sacramento Valley, can be raised in these valleys of Idaho, without irrigation.

Oregon Climate.—For years the "Oregon mist," has been a standing slur with the surrounding States and Territories, and to describe that "mist," would be to say, it is simply a heavy fog, without the chill and malarious taint, that sneaks along with fog in other localities. It never rains in torrents and showers in Oregon, but settles into a heavy dampness, without the least atmospheric disturbance; thunder storms are rare, hail storms, cyclones, hurricanes and blizzards are unknown to the State. After September the soil is kept moist in its dew bath; from the first of November, until the second week in May, the rainfall is regular and copious, insuring the best of crops, and the farmer's prosperity. The climatic conditions of this far-western State, are particularly adapted to good stock. The "chinch-grass," as it is known on the Pacific Coast, is the most healthful grazing to be found in the world. The draught horses of Oregon are remarkable for size, health and endurance. The winters cannot be called severe, when, west of the Cascade Range, the farmers allow their stock to roam the year through, without any attempt at housing or feeding. L. LESTER.

The Herbage of a Permanent Meadow.—The great value of the experiments conducted at Rothamsted, Eng., by Messrs. Lawes and Gilbert, has often been acknowledged in these columns. One important feature of these experiments is their continued character. Results derived from the same treatment of plots of ground for twenty and thirty or more years, have a value far beyond those experiments lasting but a year or two. In the report now before us, we have only one class of results from twenty years' experiments upon a meadow of mixed herbage. The "Agricultural Results" were published in 1880. The present report gives the "Botanical Results," and is the work of that most conscientious and pains-taking botanist. Dr. Maxwell T. Masters, editor of "Gardener's Chronicle," London (Eng.) This report occupies over two hundred and thirty of the ample quarto pages of the Transactions of the Royal Society, and is illustrated by tables that are wonderful in their completeness. The object of these experiments, which have been continuous for over twenty years, was to show the effects of fertilizers upon the herbage of a meadow. Some twenty-two plots were carefully measured, some were left without any treatment, and others had weighed quantities of manure and different fertilizers applied to them. Records of the fertilizers, and their effect upon vegetation, have been made from year to year. These experiments involved a vast amount of mechanical labor. To take a fair sample of the herbage of each plot was no small task. The collectors followed the mowers, and a portion was taken from each swath; these portions were carefully mixed, and a sample of ten or twenty pounds taken for examination. The specimens from each plot were overhauled and assorted by experts, including boys, who became wonderfully skillful in detecting the different plants. An account was made of the numbers of each species, and they were also grouped as gramineous (grass-like) plants, leguminous (clover and related) plants, and miscellaneous, mainly weed-like plants. These results are presented in tables, allowing a comparison to be made of the effects of different fertilizers. Should a study of these show anything of value to our farmers, we shall make use of them. Our present object is to acknowledge the receipt of this remarkable contribution to scientific agriculture, and again to call the attention of our readers to the extensive, accurate, and most valuable experimental work carried on at Rothamsted, England.

Burning Out Stumps.—E. L. Burnett, Nunda, Colo., asks our opinion of the following method of destroying stumps: "In autumn or winter bore a one or two-inch hole eight inches deep. Drop into it one or two ounces of saltpetre, fill the hole with water, and plug it up. In spring remove the plug, pour in a gill of kerosene and ignite it. The stump will smoulder away without blazing, to the extremity of the roots, leaving nothing but ashes."—The above "recipe" has been going the rounds for several years. That saltpetre will cause a green stump to disappear in this manner, looks as improbable as that a stump holding a gill of kerosene will "smonlder away without blazing." Still, we have not tried it. If any of our readers have, will they kindly give the result?

An Inexpensive Pudding.—When eggs are as scarce and costly as they often are, we can commend the following, if as good as that we have tasted, made by this recipe: Have ready a pint of bread crumbs, a quart of sour apples, pared, cored and chopped moderately fine; a full cup of sugar, and two or three tablespoonfuls of butter. Butter a pudding dish, begin with a layer of apples, sprinkle over them some sugar and a few bits of the butter, nutmeg or cinnamon as desired, and cover with bread crumbs; then more apples, etc., repeating the layers until the dish is full, the top being bread crumbs. Cover tightly and steam three-quarters of an hour, finally browning slightly in the oven. To be eatcn warm, with cream or butter and sugar rubbed together.

Household Recipes. — Without a variety of available fresh fruits for the preparation of desserts, the following recipes will supply the deficiency most admirably: *Suet Pudding.*—One cup cach of beef suet, chopped fine, raisins chopped, sweet milk, sugar, three eggs, fonr cups flour, a teaspoonful soda, two of cream tartar or four even teaspoonfuls baking powder, and a little salt. Steam two hours. Half of above is sufficient for five or six persons. For sauce, use cornstarch or sweet gloss starch, made the same as for thick laundry starch. Season well with butter, salt, sugar, and extract of lemon.——*Orange Shortcake.*—Two eggs, one cup sugar, beat quickly and lightly together, add five teaspoonfuls cold water, one cup flour rounding with two teaspoonfuls of baking powder, sifted together, a pinch of salt, flavor with lemon extract. Bake in two jelly pans in a hot oven. For icing use one cup sugar, two tablespoonfuls water, and boil until it threads from the spoon. Remove from stove, and when a little cool stir in the white of one egg, well beaten. Slice three or four oranges, spread the cake with the icing and a layer of the slices; then add the second layer, treating the top in the same manner. Serve cold with sweet milk or better still, whipped cream. HAZELWOOD.

Gas-Lime as a Fertilizer.—With the coutinned extension of gas-works, even to quite small villages, there is an increasing amount of so-called "gas-lime;" and, taking the year together, no other single question comes to us so often, as, what is the valne of this product as a fertilizer? When fresh from the gas-house it has an offensive odor, and so many associate unpleasant smells with fertilizers, that they freqnently overestimate this material. When illuminating gas is produced by heating bituminous coal in the retorts, several impnrities are mixed with it, sulphnr or compounds of sulphur among them. To remove these, one part of the process is to pass tbe gas, on its way to the distributing reservoir, through boxes of fresh-burned lime. The sulphur unites with the lime, and forms calcium sulphide, formerly called sulphide of calcium, or sulphuret of lime, etc. When the lime ceases to longer act efficiently, it is thrown out, and fresh lime introduced. This refuse lime is constantly offered to farmers as a fertilizer, often at a nominal price. Properly used it may be as valuable as a mixture of common lime with some land plaster; improperly used it is poisonous to plants, as many have found to their cost and disgust, and when the sulphur and lime, or the calcinm sulphide, is exposed to the air for a sufficient time, the sulphur is oxidized to sulphuric or sulphurous acid, the calcium (or basic metal of lime) is oxidized at the same time into lime, and the union of the two forms sulphate or sulphite of lime, or both. The sulphate of lime is the same as plaster, gypsum or land plaster, so much used as a fertilizer. The rest of the refuse is mainly common slaked lime, though usually carbonated, making it jnst the same as air-slaked lime that has been sometime exposed to the atmosphere. It will thus be seen that while the fresh gas-house lime is not a safe application direct to crops, or to soils to be soon seeded, yet if it be left sufficiently spread out, (better under cover from rains, but not absolntely essential), until disagreeable odors have mainly passed away, which may take place in from two to six months, or longer, the material is probably about equal to common air-slaked lime: or it may be somewhat more valuable on soils where land plaster produces good results.

Chat with Readers.

Lima Beans.—*B. Miles*, Lorain Co., Ohio, sends us a seasonable hint. He makes the hills for the beans four feet apart each way, in two rows. After setting the poles, those of four hills are brought together at the top, and firmly tied with tarred twine. These poles soon beeome covered with vines, and stand so firmly, that be has had none blow over, while the beans hung down in the leafy tents thus formed, in such a manner that Mr. M. says, "it is just fnn to pick them."

Making Straw into Manure.—*Mr. J. J. Ballinger*, Cheney, W. T., asks us for a good way to convert straw into mannre. We know that live stock will do this most satisfactorily.—Feed the straw to sheep or cattle, with a daily ration of grain or hay, or both. If the straw must be reduced to a field fertilizer without the aid of the animal system, it needs to be kept continuously moist. If this is not possible, the straw may he plowed under, where it will afterward decay. If none of these methods are available, the straw may be hurned, and the ashes applied to the land.

Trouble With a Rose Bush.—*Mr. C. L. Whitman*, Ludlow, Ill., sends us a young rose bush, with an excrescence, the size of an English walnut, growing upon the stem, just helow the surface of the ground. The swelling has all the characters of a gall, and is no doubt due, like other galls, to insects, which pass their larval state in them. We were unable to find the insect, though as the frontier men say, there was "a plenty of sign." It is a proper precaution to burn all such excrescences that may be met with, whether they occur above ground, or below the surface.

A Stimulant for Tomatoes,—"*Beginner*," Wakefield, Mass., asks, "What artificial fertilizer can be used upon a crop of tomatoes, to give a quick and temporary result?" The soil for tomatoes may be easily made too rich, and the vines stimulated to rampant growing, rather than to fruit bearing. A light, sandy soil, with a little well decomposed stable manure in the hill at planting, gives better crops than a strong soil heavily manured. Of the artificial fertilizers, a good superphosphate is likely to give the best results. A tablespoonful or so to each plant, to be worked into the soil at the time of setting out, or rather more applied later, when hoeing, will probably be of good service.

Cabbage Maggots.—*Mr. O. D. Smith*, Andes, N. Y., writes us, he has been troubled for the past few years with a small white maggot on the roots of his cabbages, both while in the seed-bed, and after they were set out. They eat off all the small roots, and sometimes bore the stem. The maggots are apparently those of the cabbage-fly of Europe (*Anthomya brassicæ*). When a third of an inch long, they leave the infested cabbage and pass into the ground, from which, after pupation, the mature flies come forth. Several broods are annually produced. The best remedy thus far employed is lime, which is best applied in the form of lime-water. Superphosphate as a fertilizer acts as a preventive. It is not best to grow successive crops of cabbage on the same soil.

Catching a Wild Cow.—*Mr. F. W. Godsal*, Fort Macleod, Alberta, Canada, wishes to know if there is any plan or trap for catching a wild cow by the head, and holding her in order to milk, or otherwise handle her.—Have a set of stanchions set in some shed, or even an open yard, into which the cow may be driven. Then if feed is placed in front of the stanchions, she will be forced by hunger to put her head through, and then by pulling a cord the movahle stanchion may be shut, and the cow caught. You will bave a good time "gentling" her, but be patient and do not strike her, or hurt her in any way. One blow or kick will undo all the progress towards taming her you can make in half a day. Tie her legs to milk her, but do not hurt her.

Grape Rot.—*Mr. J. H. Glem*, Coultersville, Tenn., writes us, that he has been much troubled with grape rot. We do not know of any certain remedy for this disease of the vineyard. This destructive work is doubtless that of a small, parasitic fungus. The fungus plant preys upon the juices of the berries, and causes them to change color, and finally drop off. Some grape growers have used Flowers of Sulphur with some success. This substance, when applied to the foliage, has proved a remedy for the leaf mildew, so prevalent in many parts of the country. The rot of the berry is much more difficult to reach. Paper bags placed over the clusters just after flowering, tend to keep off all disease germs, and have served well in other respects when employed.

The Quince Borer.—*Mr. J. A. Price*, Mt. Vernon, N. Y., writes us for a remedy for the quince borer. This pest of the orchard was described, with engravings, in the December *American Agriculturist*, 1883. The striped parent beetle deposits its eggs in the bark near the base of the tree, from June to August. Petroleum paper wrapped around the tree, partly below ground, will keep off the beetle. The deposited eggs are killed by an alkaline (potash or soda) wash. Two pounds of whale-oil soap, and four ounces of sulphur, in a pallful of water, is a cheap and reliable mixture to apply to the trees. Tbe borers already at work should be cut ont, or killed in their burrows with a wire probe. A knife in careless hands may do even more damage than the borers. Cut away only enough bark to admit of reaching the intruder.

Pig Raising.—*Mr. L. M. Stearns*, Cardiff, N. Y., wishes answers to the following questions: What is the most prolific kind of swine that have the following qualities—easiest keepers; fatten at any age; do well on red clover; make from one hundred and fifty, to two hundred pounds of pork at eight months old, and will do to raise in Central New York?—The small Yorkshires (white), and the Essex (black) are the easiest keepers. They will fattcn at any age, in fact, if they are fairly well fed, are always fat. These pigs do well on red clover, keep fat, and will make two hundred pound pigs at eight months old. A cross-bred pig will do better. Say pigs half small Yorkshires, and half Berkshire, with the latter for their dam, or the Yorkshire or Essex crossed upon big sows of any breed. You can raise any kind of pigs you wish in Central New York, if you will take care of them, and if not, you had better not raise any.

Preparing Fish as a Fertilizer.—"*Amateur*," Artondale, Wash. Ter., can get any quantity of fish, but is at a loss how to use them. He procnred six tons last fall, and stratified them with alternate layers of earth. This spring they are not half decayed, "while the perfume is horrible." On the Atlantic Coast, the fish guano is a secondary, or at least a joint product. The fish are first pressed for their oil, the meat and bones are then dried and ground, and in that condition the fish scrap decomposes very readily, either in a compost, or applied directly to the soil. The oil is of no value as a fertilizer, and retards the decomposition. Still you have had your "fish pie," made only during the cool months. We do not know wbat kind of fish you used, but it can hardly be more oily than the menhaden, which the New England and Long Island shore farmers formerly composted in the manner you described. Warm weather will no doubt hasten the process, and the odor can be suppressed by a thicker covering of earth upon the heap.

The Transmutation of Grain.—"*A. W. M.*," Alamossa, Col., asks us if it is a fact, that either in England or America, oats have been sown, and after the crop had been fed off by sheep the first season, the second year a crop of barley has been reaped, no other seed having been put in in the mean time. Also, has wheat in like manner resulted from the sowing of barley? That both barley and wheat may have appeared under the above conditions is possible, but that oats ever change into barley, or barley into wheat, we have no proof. These belong with the still more general belief that wheat will produce chess. Numerous people are ready to assert that they have seen these transmutations, but when asked to show them to others, the evidence always fails. Elihu Burritt, known as the "Learned Blacksmith," recorded his observations in England in a book, in which he gravely stated that he saw a case of the transmutation of a field of one kind of grain into another. The farmer declared he had sown wheat, and there was a field of barley, or *vice versa*, and the wonderful fact was written down, and appeared at length in a costly book. Mr. Burritt was probably "learned" in many things, but not in what constitutes evidence. We have been on the look out for a stalk that was partly wheat and partly chess, for these many pears, and have failed to see one.

Salt as a Fertilizer in the Orchard.—*A. W. Langdon*, Erie Co., N. Y., asks our advice "as to the quantity of salt advisable to use about fruit trees in a old orchard." There is no more positive knowledge as to the value of salt as a fertilizer for fruit trees, than there is regarding its utility when applied to field crops. The fruit trees to which it appears to have been most beneficial, are the plum and quince, and on these it has been used more as a remedy for diseases, than as a fertilizer in the proper sense of the term. Salt in sufficient quantity applied to the roots, will destroy all vegetation, including the largest trees, hence caution must be exercised. Mr. Meech, the successful quince grower of New Jersey, advises a pint to be applied to the soil around quince trees that are two or three years old. Whether salt will produce a better effect upon old orchard trees than a good dressing of fine bone, we much doubt. If applied to old orchard trees, we should prefer to try two quarts, sprinkled upon the soil as far as the roots extend, to a larger quantity. We hope Mr. L. will try the salt, and also upon some of the other trees, a liberal dressing of ashes, of bone flour, and stable manure, and report the comparative results.

City People as Farmers.—*J. Reese*, Covington, Kendon Co., Ky., asks: "Can city people make a success of farming?" That depends—if the people are in successful and profitable business in a city, they may possibly make enough to allow them to live on a farm. This is a frequent question, and the answer is not intended to be a trivial one. The question gives expression to a too common opinion, that a farm will somebow run itself, and not only afford city people a rural home, but it may return an income besides. A farm, to be successful, requires all the care and business application that is needed in any other business. If one who has built up a profitable business in dry-goods, hardware, or groceries, in a city, upon moving to a farm will apply to farming the same business methods that have made his city occupation profitable, the probabilities are that he will succeed at farming. Unless he does this, and if he at the same time continues his city methods of living, a failure is certain to follow. We would not imply that farmers should live any more poorly than city people. A merchant or tradesman works for money and with that, everything consumed in the family is purchased. On the farm, the object is to produce everything, so far as may be, that is consumed by the family. A different kind of economy must be studied. The provisions needed by the family must be largely produced on the farm, and for the few things that must be brought to the farm from the outside—coffee, sugar, clothing, and a few others, something must be produced that will sell readily and bring the money, to allow them to be purchased. City people who turn farmers may succeed if they will really become farmers.—If they remain city people, they had better remain in the city.

Farming in England.

ALFRED TRUMBLE.

During a recent tour of Europe, the writer spent most of his time among the farmers of the countries he visited. He was familiar with country life at home, and everywhere contrasted the condition of the foreign farmer with that of the agriculturist in the United States. It is for the purpose of illustrating these contrasts, that he presents this sketch and its accompanying pictures to the public. Everything about farm-life in England is strange to American eyes. The great waste of land and labor in hedging and ditching is striking to one accustomed to our own more economical and ready system of fencing. All year round, the care of hedges and ditches on a farm of any size, keeps



AN AGRICULTURAL LABORER.



THE PLOW-BOY.

several men employed, and the farms themselves seem strangely cramped to one accustomed to the broad, open stretches of the West. The people in their odd dress, work more slowly than do the laborers in our own fields; the horses are larger, heavier, and more deliberate in their movements, and the implements of farming are often unwieldy and ridiculously primitive in form. Almost the only feature of the country in England that strikes an American as enviable, is the magnificent roads, which even in the worst of weather, are fairly good for travel. The spirit of improvement is now spurring the English farmers into an approach to the enterprise of our own land. Agricultural schools are doing good work, and modern machinery is being extensively introduced. In Suffolk, Norfolk, Lincoln, and some other counties, agriculture has attained to a high degree of perfection, but in others it is in a primitive state.

Land in England is more frequently leased than owned by the farmer. Many leaseholds have been in one family for generations, and their holders could buy the land as far as money was concerned, but the great land-owners will not sell it, and the farmer remains a tenant. He may pick up odd spots of ground here and there, and often will be found farming lands of his own ten miles apart, and residing and cultivating a large estate, for which he pays rent as well. Wheat, barley, and stock-farming, are the great agricultural interests of England. In the western counties, where the climate is more suitable for grass and less so for wheat, dairy farming and stock-raising rule. The eastern counties furnish the wheat-land, but all over England are found permanent pastures, where countless herds fatten. Yet the supply of meat is still so insufficient, that large imports from America are necessary.

America is, indeed, the great bugbear of the English farmer. As a recent statistician truly observes: American competition has reduced his profits on grain-growing and beef-raising more than fifty per cent. He pays a higher rent than we do, and uses more expensive machinery. Moreover, the high rent forces him to demand high rates for his productions. American wheat and American beef can be landed at Liverpool at from a quarter to a third less the bushel and pound than the English can be sold for, and still pay our own farmers a better profit. The English farmers are like their tools—built to last, but not to work fast. They take things easy, and are little interested in affairs off their farms. They do not read many papers, and almost their only relaxation is found at an annual fair or two, and at election time. Of late years, the sporting farmer has formed an exception to the rule. He imitates the follies and extravagances of the great folks, goes hunting, plays billiards, bets on the races, and drinks his way down the road to ruin, rapidly and easily, but he is an exception fortunately, and will remain one.

The English farmer is a good feeder. He believes in treating himself and his household well. His house is commonly as solid and old-fashioned as his tools. One Welsh farm-house, of which we present a picture, is more than four hundred years old. Its tenant is a very wealthy man, but he cannot buy it, though he desires to do so and rebuild.

Here and there are found old manors, deserted to the winds sometimes, at others still inhabited. They are absolutely sepulchral in their gloom, and justify the ghost stories with which they are one and all associated. The mansions of the great land-owners, ancient and modern, are, on the contrary, marvels of luxury. In them science has remedied the imperfections of the past. The proprietors of some of these estates farm them themselves, on a vast scale, frequently with American methods and machinery.

Society in rural England is divided into as rigid departments as it is in the cities. The squire steps aside to let my-lord pass, and the tenant-farmer takes off his hat to the squire. As for the agricultural laborer, he doffs his hat to every one, from the great man of the district down to the "squire's man," whose business it is to keep his master posted on all the small goings-on of the community he lords it over. The English agricultural laborer is a singular individual. Except that he has a permanent home, he is no better than the tramp hands who are employed upon our great western farms, when the season comes round. He is absolutely uneducated, and he knows little more of the soil he helps to cultivate, than the horses which drag the plow or the crows which follow the sower. He begins life as a crow-boy, sitting on a fence and shouting all day long, to keep the crows from plundering the furrows; he ends life a man of full size, but only a child in intelligence still.



THE SPORTING FARMER.

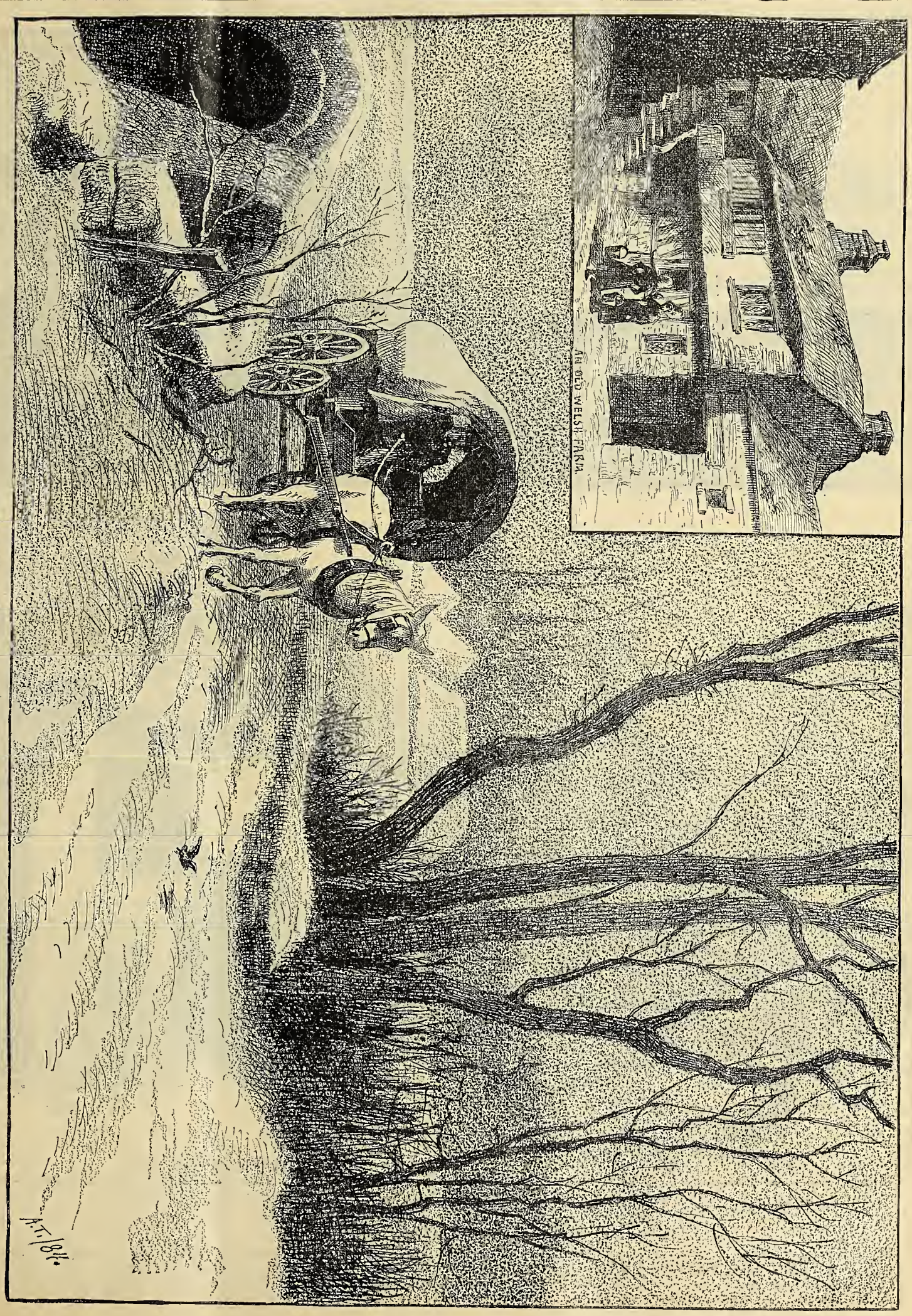


THE SQUIRE'S MAN.

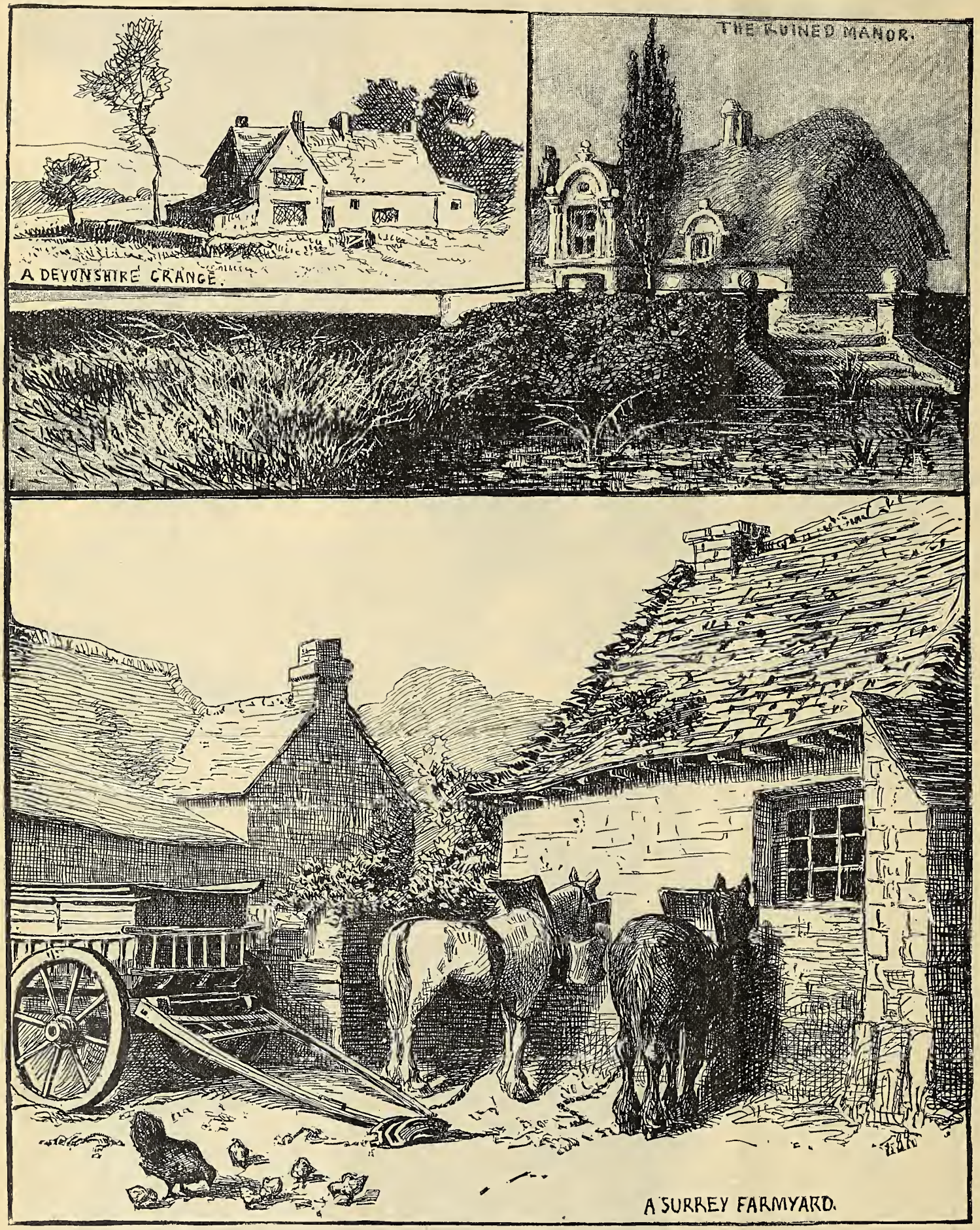
The condition of the English agricultural laborer varies with that of the district to which he belongs. On poor lands, he earns at the best eight shillings (about two dollars) a week, on good ones he rises to fifteen and even twenty. In some districts, we find him living rent free, in others he has to pay rent. But whether he pays the rent in money or not, the landlord gets its price from him, and to keep body and soul together, he must work constantly and put all of his family at tasks. His sons begin to do some kind of service almost as soon as they can walk. Then they are promoted to the plow, or otherwise to assist about the farm. If such a boy can get a job in the barns or stables, his highest ambition is achieved.

The misery of the bulk of agricultural laborers in over-crowded England is indescribable. Numbers have of recent years been sent to Canada and Australia by popular subscription, but the mass which remains is in no better condition than before. Not a little of this is due to himself. Many landlords do their best to improve the condition of their laborers, but those who should benefit by their efforts, are so steeped in ignorance and so unmanned by hardship, that they are incapable of assisting their benefactors in their good work.

An English writer not long ago said: "Though slavery has been unknown in England for centuries, we have, in the agricultural laborer, a creature who is a slave in everything but name. He is a vassal of the soil. He belongs to the same estate his great grandfather did, just as a Russian serf be-



THE CARRIER'S WAGON IN YORKSHIRE.—*Drawn and Engraved for the American Agriculturist.*



PAST AND PRESENT OF ENGLISH FARM LIFE.

Drawn and Engraved for the American Agriculturist.

longed with the land he tilled. Only, where the serf was tied down by law, he is chained by poverty, ignorance, and degradation."

Our agriculturists are progressive, intelligent, unwearying in their efforts for advancement and improvement. In 1862, Horace Greeley predicted exactly what has come to pass. With improved machinery and advanced ideas, the American farmer can more than compete with his English cousin, thousands of miles away. The American farmer has himself to work for, and he knows the land he improves will benefit his children.

A Small Barn.

E. O. LEE.

A general barn should provide ample store-room for hay, grain, straw, etc.; comfortable quarters for the live stock; convenient storage for wagons and all farm implements, and the best arrangements for making and preserving fertilizers to be returned to the land. The plan herewith presented (figs. 1, 2, and 3), is for a barn thirty-six by forty feet, with a lean-to shed upon one end. The threshing floor (fig. 2), eleven feet wide, is entered by a sliding door ten feet high, kept in place at the bottom by a hewed sill, placed nearly on the level of the floor and even with the gravel drive-way outside, making an easy entrance for heavy loads. First, at the right, entered by a door-way three feet wide, is the shop six by six feet, provided with work-bench, vise, etc., and lighted by two small windows. There is also a window of six, nine by fifteen, lights above the entrance, and a similar one at the other end of the threshing floor above the roof of the shed, which admit of all the light needed. Next to the shop is a floorless room eleven-and-a-half by sixteen, suitable for a wagon and farm tools, and is entered by a sliding outside door eight feet wide. A stairway, starting two feet back from the line of the threshing floor leads through a passage two-and-a-half feet wide, to the floor of the seaffold and granary. The latter (fig. 3), sixteen by eighteen feet, entered by a door three feet wide, is provided with cribs for corn on two sides, two-and-a-half feet wide and nine feet high, sufficient for four to five hundred bushels of corn.

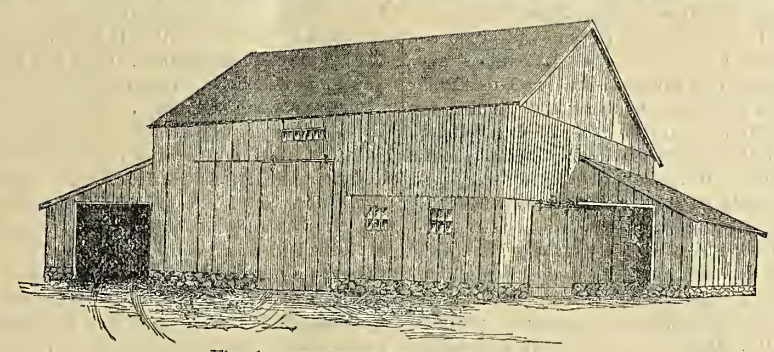


Fig. 1.—EXTERIOR OF A SMALL BARN.

Bins for other grain may be constructed on the other sides as desired. The loft over the granary is reached by a step-ladder (the fruit-ladder may be kept there), and is a good place to store lumber, fruit packages, etc. The horse stable, fifteen-and-a-half by sixteen feet, is divided into three stalls and has no floor. The slide door opening into the side shed is used in getting in dry earth and other absorbents, while the manure is thrown out at the rear door. A small door next to the stairs is very convenient, and a similar one opening into the rear stall makes a good place to feed a calf when one is kept there. The hay bay has a girt in front two or three feet high, supported by short studs, upon which boarding is fitted tight to the floor, to prevent any escape of grain in that direction while threshing. Similar boarding in front of the cow stable will serve the same purpose and keep the fodder in place. There should be a permanent ladder at the side of the centre post, reaching from the bay girt to the beam. The boarding in front of the stall next to the hay-mow should be hinged, so as to allow a passage-way there when the stall is not occupied. A sliding door at the rear affords a convenient place to supply absorbents as well as a short passage to the shed. Through a sliding-board window, eighteen by eighteen inches, the manure may be thrown into a shed, where it can be worked over by hogs when desirable. The mangers should be two-and-a-half feet wide, and provided with comfortable ties. The rear door of the threshing floor need not be more than eight feet wide and seven-and a-half feet high, to slide on rollers like the others. The stable doors opening into the yard might as well have hinges. The cistern, seven or eight feet in diameter, should be properly protected from the yard and supplied with a pump and trough. A gate between it and the corner of the barn would allow the passage of a wagon when desired. There may be a floor over the rear part of the threshing-floor on a level with one in the shed, thus making more room for straw or fodder. The following estimate contemplates boarding the outside with ordinary barn boards, and lining the cracks with cheap half-inch stuff two to four inches wide, except the gables, which are without lining and lap over the boarding below the end rafters, being set flush with the same. The crib sides of the granary should be boarded with strips three or four inches wide and an inch apart, being set upon a narrow piece of zinc, nailed over the ends of the lower boards to keep the water out.

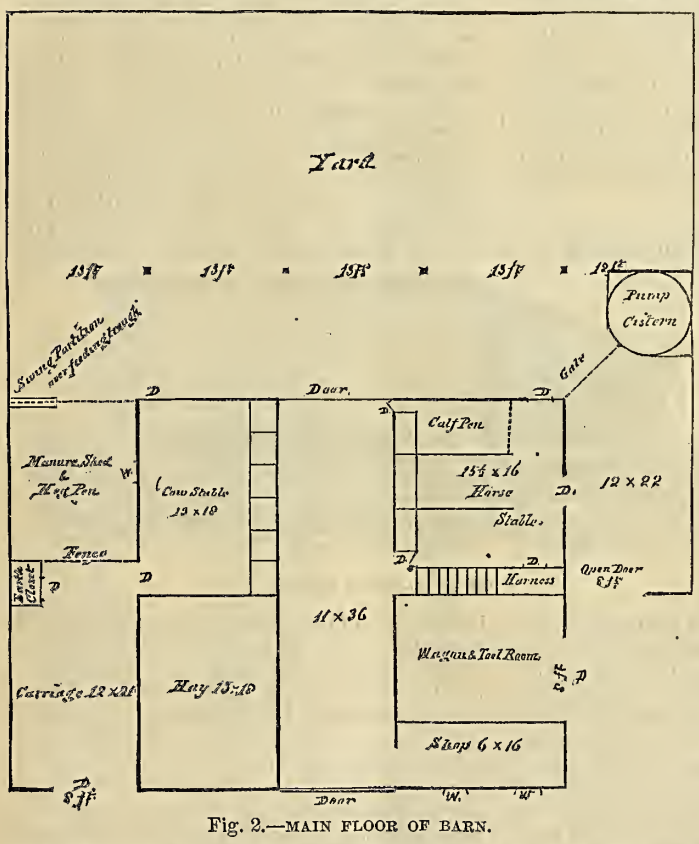


Fig. 2.—MAIN FLOOR OF BARN.

In the side of the granary, between the bins and crib, there might be an opening, through which corn could be shovelled from the wagon and afterwards into the crib. A shute might be constructed, through which grain could be taken directly from the bins to the bags on the wagon in the shed below. The broad boarding upon the side of the wagon-room and granary affords a good place to hang rakes, hoes, shovels, forks, etc., where each can be taken down without disturbing the others, and all be convenient and out of the way. The general appearance of the building might be improved by using dressed boards of uniform width, and covering the cracks with good battens; and further by surmounting the roof with a neat ventilator, and covering with paint. The stables might be paved and cemented at no very great cost.

Estimates of Material and Cost:

SILLS.				**PLATES.**			
2	40	feet long, 6x6,	240 feet.	2	13	feet long, 6x6,	78 feet.
3	36	" " "	324 "	2	11	" " "	66 "
1	48	" " "	144 "	2	16	" " "	96 "
1	30	" " "	90 "	2	purline,	40 ft. long, 3x6,	120 ft
1	22	" " "	66 "	1	shed,	64 " "	96 "
3	16	" " "	144 "	1	"	48 " "	72 "
2	11	" " "	66 "	1	"	30 " "	45 "
1	13	" " "	39 "	**GIRTS, BRACES, ETC.**			
3	8	" " "	72 "	50	pieces	16 ft. long, 3x4,	800 ft
1	6	" " "	18 "	6	"	13 " " "	78 "
2	4	" " "	36 "	20	"	18 " " "	360 "
POSTS.				**RAFTERS.**			
12	16	feet long, 6x6,	576 feet.	42	24	feet long, 3x4,	1008 feet.
7	6½	" " "	136 "	71	14	" " "	994 "
4	8	" " "	96 "				
BEAMS.				**JOISTS.**			
4	36	feet long, 6x6,	432 feet.	16	12	feet long, 2x6,	208 feet.
4	16	" " "	192 "	16	16	" " "	256 "
3	18	" " "	162 "	12	16	" " 3x6,	288 "
1	13	" " "	39 "	18	12	" " "	324 "

Total frame stuff, 7761 feet, @ $18 per M	$139.70
Shingle lath, 6192 feet, @ $6 per M	37.15
Boards, 16 ft. long, 5000 feet, @ $25 per M	125.00

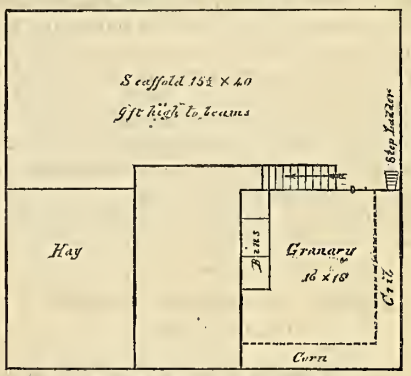


Fig. 3.—LOFT OF BARN.

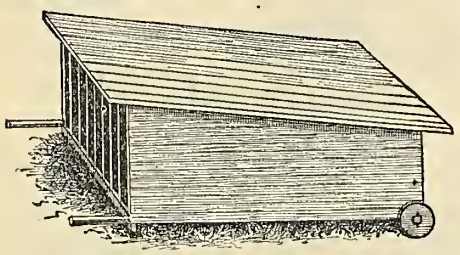
Yellow pine, 12 ft. long, 432 feet, @ $25 per M	10.80
Hemlock, 12 ft. long, 432 feet, @ $18 per M	7.77
" 13 " " 468 feet, @ $18 " "	8.42
" 16 " " 865 feet, @ $18 " "	15.55
Half-inch lining, 1000 feet, @ $12	12.00
Cedar shingles, 4x24, 18,500, @ $9.50	175.75
Stone foundation	45.00
Labor	150.00
Nails	6.00
Rollers and hinges	6.75
Windows	5.00
197 ft. eave gutters and tubing, @ $10	19.70
Cistern and pump	30.00
Sundries	5.41
Total cost,	$800.00

Practical Poultry Suggestions.

There need be no trouble in moving sitting hens from the nest in which they have been accustomed to lay, to the one prepared for sitting. The nest should be made before the hen is disturbed, and so arranged that she can be shut in for a day after being moved. Place the eggs in the nest and after dark set the hen gently on them, and leave her as soon as possible. Fowls accustomed to handling will not object to this change. It is well if possible to set them in a place away from other fowls, where they will be perfectly quiet and in partial darkness. Give the fowls intended for breeders a free range until planting time at least. This will keep them in a thrifty healthy condition, and prevent an accumulation of fat. A large percentage of eggs will hatch, and the chickens will be stronger and get a better start.

Small coops for chickens should have a bottom, otherwise the digging of the hen in the ground will make hollows in which water may collect, and if the chicks are not drowned they will get wet, which may lead to cold and roup. To make a continuous growth, chicks should be dry and warm at all times. A comfortable coop is shown in the engraving. If one wishes to be very careful of a few

choice chicks, small wooden wheels can be placed on the side near the rear end, so that the coop and contents can be trundled under a shed, or on to the barn floor until a shower is over. Young chicks should be fed in small quantities, and as often as once in three hours. Give only what they will eat clean at each feeding. A mixture of corn-meal, and ground oats is very nourishing, and should be either wet with boiling water, or baked in a cake and then soaked in warm milk. Feed no hard grain until six weeks old, and up to this time chicks



A MOVABLE CHICKEN COOP.

need no drink, though they will enjoy sour milk occasionally. The most critical time in the growth of chickens, is when the stiff wing feathers begin to grow. After this period is passed, they will push along rapidly, and should be ready to dress as broilers in ten to twelve weeks, when at from thirty-five to forty cents a pound, they will bring as much as if fed until six months old, and sold at fifteen to twenty cents. Save large, finely colored eggs for hatching; it pays well to choose the best product of the hens for improvement of future stock, as in saving seeds from the best vegetables and flowers. If the best layers, and the layers of best eggs are chosen from year to year, the poultry stock will greatly improve. This rule applies as well to the fancier who wishes to improve the appearance of his fowls by breeding for marking and symmetry, as to the farmer and producer who keep a few fowls for home consumption only. H. C. B.

Pasture and Meadow Grasses.

COL. F. D. CURTIS.

A variety of grasses is best for pastures, so that there may be a continuous growth. The seeds of grasses, as well as other seeds, when buried at such depth that they do not germinate, remain dormant for a long time, and will grow when brought by tillage near the surface. There is always more or less self-seeding, as the earth is filled with seeds which have acumulated and only waiting favorable conditions to show themselves. It is not always necessary to sow a variety of grass in order to have such a sort represented in a pasture, but of course a variety is more certainly secured by so doing. If the soil is made rich before seeding, it will help to increase the yield of self-seeded grasses. Making the surface smooth and fine will also aid in bringing out the latent seeds.

For a pasture, variety of grasses should be selected adapted to the land and the purpose of the pasture. Timothy (*Phleum pratense*), is the poorest of the cultivated varieties of pasture grasses, as it makes very little leaf herbage, and after the stems have matured the after growth or after-math is small. It is the best grass for meadows of any single variety, both for yield and market, being better suited to horses than cattle. It is among the poorest for sheep. The best single grass for pasture is orchard grass (*Dactylis glomerata*). This is also the earliest, except the small blue grass (*Poa pratensis*), so common in old pastures, dooryards, and along the highways. Orchard grass is valuable for its prompt renewal after either cutting or grazing, and for its permanency, being superior to Timothy in this respect, and not excelled by any, unless it is Red-Top (*Agrostis vulgaris*), on rich land it will furnish a fresh bite in three days. No other grass is equal to it in this respect. It should always be allowed to produce an after-math before cold weather sets in, or the crowns will freeze and die. The after-math acts as a protection and is necessary in a cold climate. It will not, however, cut so readily as either Timothy or clover, owing to the form and tenacity of the roots, which are long and fibrous, and grow in bunches. The sod makes more enriching material than any other grass. An orchard grass sod always makes mellow land, as the roots penetrate to a great depth and loosen up the sub-soil. The roots of Timothy are small and of shallow growth, hence are easily thrown out by frost and make a weak sod. Orchard grass is not so well adapted for meadows as other varieties. It ripens at an inconvenient time, before the spring work is finished, and does not produce so large a crop or as good a quality. Unless cut when in blossom it is hard and woody. Timothy is much better if cut when the seed is beginning to form. Timothy will flourish either on dry upland, or low land if it does not heave with the frost, so as to throw out the bulbs. Orchard grass is also adapted to any variety of soils, except very wet land. Red-Top grows well on moist land, even if it overflows, and it will also do well on dry land. It makes hay of excellent quality, good for any kind of stock, being softer in its texture than either Timothy or orchard grass, and lighter in proportion to the bulk. It is next, if not equal, to orchard grass in value for pasture, with the exception of extreme earliness and quick renewal after croping.

Silk Culture—Food Plants.

MRS. M. J. G. HAMMACK.

There are hundreds of thousands of women who, being unable to do hard work, have no means of converting labor into capital, and to these silk culture is really the creation of a new industry. For the infirm, the invalid, and the child, it is the open door to a competency, with no burden of drudgery. Let no one suppose that the cultivation of silk is a difficult pursuit, for it is a very simple one, and as instructive and interesting as profitable. There is no real obstacle to its success in America, for the dry and bracing atmosphere of this country is extremely healthy for the worms. One of the advantages of the silk industry is that a comparatively small amount of capital will yield a large income, so that to a person with limited means and a family of children, the culture of silk holds out encouragements of extraordinary promise. Women and children can make one hundred dollars the first year after planting the trees, and the second, from one hundred and fifty to three hundred dollars, with one acre of mulberry trees.

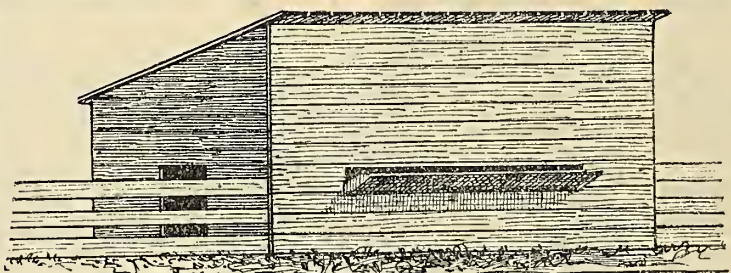
The gathering of the leaves and feeding the worms may be done by the children, one adult person always directing the business. It should be borne in mind that in silk culture the brain is of more importance than the hand. The first important step is to prepare the proper food for the silk worm. The leaf of the mulberry is the best, and this tree will grow and the silk worm thrive upon it throughout the United States. The maclura or osage orange, is a substitute for the mulberry, and a fair crop of silk can be raised from it, but any one hoping for complete success in its use may become discouraged. The danger in handling the thorny osage, the difficulty in securing sufficient leaves on account of the thorns, the danger of the succulent leaf at the last stage of the worm, and the great care to be observed in not using the upper end of the shoots, should prevent any one from relying entirely upon the osage as principal food. It will answer to experiment with while the mulberry trees are growing, but to use osage entirely, doubles the expense, both in gathering leaves and using the branches. Worms fed on branches are the most healthy, as that is their natural way of living, and they enjoy creeping about on the twigs. The mulberry will ever retain its superiority as a reliable and continuous food for the certainty of yielding an unexceptionable quality of silk, and its vigorous growth and production of suitable foliage invest it with properties not combined in any other plant. One-year-old trees can be used to make a crop of silk, and where the plants are set out close together as for a hedge, the clipping of the twigs and branches will favor the growth of numerous shoots which will become valuable leaf-bearing branches the next season.

For standard trees they should be set out twelve feet apart each way, and in this mode of cultivation the trees interfere but little, if any, with the use of the land for other purposes. Corn and small fruits may be grown between the rows of trees. Planting in hedge rows is the most approved mode of cultivation for convenience in gathering the leaves.

The Moretti mulberry is profitably grown for a hedge, as the large size of its leaves make it a very desirable variety. The Italian mulberry is generally preferred to all other kinds. It grows rapidly, and is clothed with leaves fifteen or twenty days earlier than the other varieties. The Russian mulberry has taken a very prominent place, and owing to its hardiness and rapid growth is in great demand; it produces fine, strong silk. The trees make excellent timber and are prolific fruit-bearers. The aromatic and juicy berries are often more than an inch long, one half inch in diameter, and vary in color, from jet black to light red. The fine fruit more than pays for the labor and expense of growing these trees. All the varieties of mulberry trees mentioned are hardy, grow rapidly, attain a hight of twenty or thirty feet, and make beautiful shade trees.

A Pig-Pen in the Pasture.

The pig pasture should be near the house for convenience in feeding. But wherever located, it should have a good pen for feeding and shelter. A pen is an economical arrangement in the matter of feeding alone. When pigs are fed on the ground much of their food is trampled into the ground and wasted. Loose troughs placed in the open field are insecure, and the strongest hogs usually get more than their share if they do not succeed in overturning the whole mess. It is a bad policy to leave pigs exposed to all sorts of weather, even during the summer season. When animals seek the poor protection of a fence or a tree, one can easily understand that shelter is needed. Farm animals are good guides to follow in supplying their wants in this respect. A shelter should be provided that will exclude cold rains, frost, and the hot sun. This may be done at small expense. Two or three



A CHEAP PASTURE PIG-PEN.

hundred feet of lumber and a few hours' labor, will erect a pen that answers all the wants of the case. The accompanying cut represents such a pen situated on the line of the pasture fence, with feed spouts accessible from the outside of the pasture.

The frame for this pen is made by setting posts in the ground, and spiking sleepers, girts, and plates to them. These posts should be of some durable timber, cedar and tamarack are excellent for this purpose. Any timber may be made more durable by pouring hot tar over the portion that is to enter the ground. The posts should be set about three and a half feet in the ground. Where the boards are put on horizontally, no girts are needed. Plates or overlays spiked to the end posts, and extending the length of the building, are needed to hold the roof boards, which run up and down, and are battened with narrow strips.

Common lumber is used throughout, the best of the lot being selected for the roof boards. A door is provided at each end. The trough is located at the front of the building, and the spout empties into this at a convenient hight from the ground. Nesting places are in the rear of the enclosure, and the whole has a tight floor upon which corn may be fed without waste. If it becomes necessary to change the pasture, this building can be easily taken down and removed. It is a good plan to have two small pastures for calves and pigs, provided with shelters of this description. The animals can then be changed without the tearing down and erecting of shelters. Calves need shelter fully as much as the pigs, and about the same plan will answer for both. W. D. BOYNTON.

Budding Forest Trees.

A. S. FULLER.

The propagatiou of woody plants by the process known as budding, consists in taking from one tree or shrub, a bud and transferring it to another. The plant upon which the bud is placed is called the stock. The limits of this operation are not very well defined, but for all practical purposes I may say that it is limited to the members of the same genus, or closely allied plants; that is, oaks may be budded on oaks, chestnut on chestnut, and generally the nearer related the species, the more successful the operation. But like all other rules pertaining to the propagation of plants, there are exceptions, and occasionally we may fiud that the wood of two species belonging to the same genus, cannot be made to unite and form what is termed a union. There is always a prefereucc in stocks belonging to the same genus, and the propagator seeks the best for his purpose. I may say, however, that as a rule, the weak and feeble growing should always be placed upon the strong growing, if rapid growth and long life is the object in view.

Budding is usually performed in summer, soon after the buds or a portion of them are fully developed on the young wood of the present season's growth. The stock into which the buds are to be inserted must be in a similar condition, although the stem or branch at the point of junction may be more than one year old, but in no case must the bark be so thick and rigid, that it cannot be readily separated from the wood beneath, because the bud is to be inserted under the bark of the stock, and unless this can be done, the operation will fail. We have to depend upon the assimilated or true sap to form a union between the bud and the stock, the same as we do on layers and cuttings to produce roots, for all the operations are analogous, only in budding, the alburnous matter forms a union with the same material iu the stock, while in the layer and cutting, it is emitted in the form of roots.

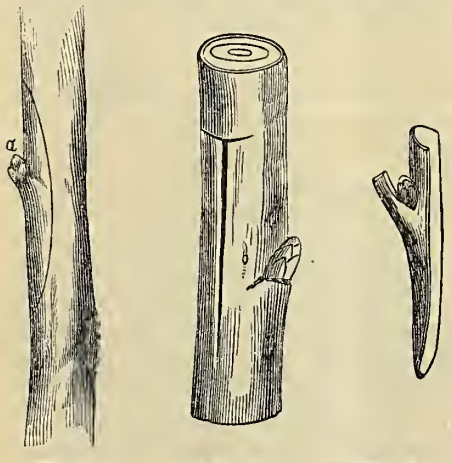


Fig. 1. Fig. 2. Fig. 3.

The proper time for budding trees must, of course, vary with the latitude, season, and kind of trees to be propagated, as some come forward earlier than others, but, as a rule, it may be performed as early in the season as good plump buds can be found at the axils of the leaves iu shoots of the present season's growth. The upper and immature ones can, of course, be discarded, if it is necessary to commence budding before all are in fit condition to use. Iu fig. 1, *a*, we have a bud which is to be transferred to a stock; a knife is inserted about one inch below it and passed upward, and brought out about a half inch above, cutting out a piece of bark with a thick slice of wood of a form shown by the circular line in the figure. We now make a cut across the stock, cutting just through the bark, aud another longitudinally downward, as shown in fig. 2, then insert the lower end of the bark containing the bud, under the bark of the stock at the point where the incisions meet, and press it down to its place. If the bark of the stock is firm, and does not part easily to admit the bud, the edges must be lifted so as to allow the bud to pass under it freely. If the piece of bark containing the bud does not pass completely under, then cut it off at the upper end even with the cross-cut in the stock, so that it will fit in smoothly. In fig. 3 a bud is shown, taken out after the upper end has been cut off, as directed, and on this is also shown a portion of a leaf-stalk, usually left attached for conveuience in handling the bud, as well as to protect it from injury. After the bud is inserted, it is secured in place by a ligature, which may be of bass bark, a strip of thin cloth, woollen yarn, or any similar material that will hold the bud and bark in place, until a union is formed. The point of the bud and leaf-stalk attached should, of course, he left exposed. The stock into which a bud is inserted should not, as a rule, be over an inch iu diameter or less than a half inch, although much larger and smaller are often used. After the bud has firmly united with the stock—which will usually be in two or three weeks—the ligature should be loosened or removed entirely. The bud is not expected to push into growth until the following season, at which time the stock above the bud should be cut away and the bud allowed to grow undisturbed. If sprouts appear on the stock they must be removed, in order that all the strength may go into the bud. The horizontal incisiou in the stock is sometimes made below or at the bottom of the perpendicular one, and the bud thrust under the bark, but upward, or the reverse of the more usual method, this permits the downward flow of the sap to reach the bud in a more direct course than when the cross-cut is made above it. It is not a convenient method, but is sometimes desirable when the flow of sap is rather sluggish late in the season.

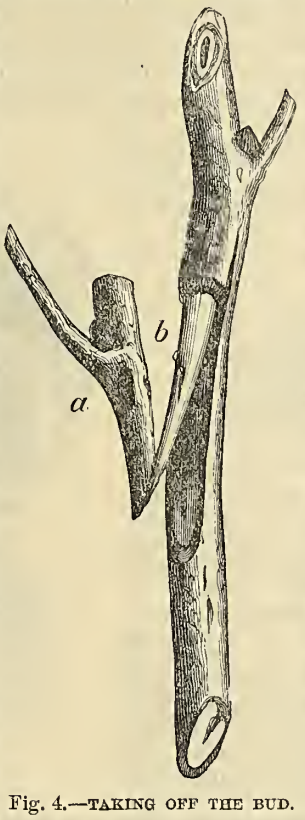


Fig. 4.—TAKING OFF THE BUD.

When a bud is taken from the shoot in the usual way, there is a small slice of wood remaining under the eye, which, in budding some kinds of plauts, it may be desirable to remove, although it is an almost universal practice iu this country to allow this wood to remain, and doubtless in a majority of cases, it is best to do so; but there are instances where a more permanent union will be secured if it is removed. With kinds of trees like the magnolias, horse-chesnuts, and common sweet chestnut, that have a rather thick bark on the young shoots, better success will be attained by the removal of the wood from the bud. When this is to be done, the shoots used must be in a condition to allow the bark to peel readily from the wood, without tearing or breaking the fibers. Hold the branch in the left hand, with the smaller end towards you; insert the knife-blade about one inch below the bud, cutting a little deeper than you would if the wood were to be left in, pass the knife under and above the bud, some three-quarters of an inch, but not out to the surface; withdraw the blade, and cut across through the bark only about half an inch above the bud, then with finger and thumb lift up the bark, at the same time press it gently forward, and you will remove the bark and bud (fig. 4) *a*, without injuriug it, leaving the piece of wood *b* adhering to the branch. This is a much better and more scientific method of removing the wood than to pick it out with the point of a knife, or to remove with a goose-quill as sometimes recommended. This concave piece of bark, with the bud attached, will fit the convex surface of the stock very closely, and on large stocks, and with buds from large shoots, taking out the wood is often advisable.

Another style of budding called the annular, and represented in fig. 5 may be practised iu summer on small shoots of the season's growth, or in spring, so soon as the bark will peel readily from stock and cion. It consists iu taking a ring of bark with bud attached from one tree, and after a similar ring is removed from the stock, the former is fitted into its place. This ring of bark may be an inch wide and fitted to stocks from the size shown up to an inch or more in diameter. It is always best to have the ring of bark wide enough to admit of placing ligatures around the stock above aud below the bud, in order to hold it in place. When performed in spring, it is best to use waxed strips of cloth, to cover the wound and exclude the air, but late iu summer and with bark from shoots of the present season, strips of bark such as used for ordinary budding, will answer for ligatures. In this style of budding, the branch from which the ring of bark is taken, should be nearly the same size as that of the stock to which it is affixed. In performing these operations an implement called a budding-knife is required, and they are made of various sizes and patterns, and are usually to be obtained at almost any seed store. The imported budding knives have usually either a thin, blunt-pointed ivory, or bone handle, or a piece of bone inserted into a horn handle, this beiug used to lift the bark of the stock, to facilitate the inserting of the bud under it. Many gardeners and nurserymen still use these old forms of budding knives, but they are clumsy affairs, and not adapted for rapid work. Any pocket knife with the blade rounded, and made thin aud smooth, will auswer.

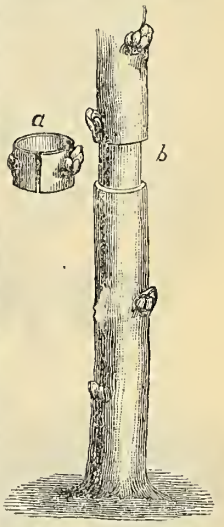


Fig. 5.—ANNULAR BUDDING.

TOBACCO STEMS FOR CURRANT WORMS.—Mr. A. P. Kinney, Jamaica Plains, Mass., writes us as follows: "In 1881 I came to this place, and found twenty-eight large currant bushes, that were iu a very bad condition on account of the currant worms. The neighbors said that for eight years the fruit amounted to nothing, the leaves beiug destroyed every year. In the spring of 1882, tobacco stems were applied as a mulch, at the rate of ten pounds to each bush, and a handful scattered through the branches. The foliage was not troubled by the worms. In 1883 only five pounds of tobacco stems were used per bush, and the leaves were not destroyed. This year I shall use only half the last amount, and believe it will be sufficient."—Any currant grower who can readily get tobacco stems, should try this remedy for currant worms.

The Southern or Deciduous Cypress.

Few of those who read of the great beauty and remarkable aspects of the cypress swamps of the Southern States, are aware that the cypress tree will



Fig. 1.—CYPRESS BRANCH AND CONE.

flourish on dry land, and that it is hardy in localities far north of those in which it grows spontaneously. The lower portions of Delaware and Maryland are its northern limits in the wild state, hut it is hardy throughout the Northern States, save in localities with exceptioually severe winters. There is a fine group of these trees growing upou the edge of a marsh, withiu a few miles of New York City, and the writer has a tree about the same distance from the city in another direction, which, upon the sandiest of soils is a fiue specimen of vigorous growth. According to Bryant, the tree is hardy in Northern Illinois, notwithstanding the growth is checked by the severity of the winters. Though



Fig. 2.—A LARGE SOUTHERN CYPRESS TREE WITH MANY "KNEES" (*Taxodium distichum*).

helonging to the conifers, this Cypress is not an evergreen, hut, like the Larch, sheds its leaves in autumn. In its native swamps the tree reaches one hundred and twenty, and sometimes, even onc hundred and fifty feet in hight. Thc trunk is remarkable for having an immense base, which for four or five feet from the surface is of double the diameter that it is above. As it grows in the swamps, the trunk is clear of branches for the greater part of the hight, aud bears at the top a flattened, wide-spreading hcad. But in cultivation, with abundanee of room to develope, the trunk is well-clothed with branches, which form a handsome pyramid of verdurc. The foliage of the tree is especially light and graeeful. The small leaves, not exceeding an inch in length, are arranged along the slender branches in two rows, like those of the Hemlock (hence the specifie namc, *distichum*, two-rowed). The leaves, shown in figure 1, are of a peculiar light and tender green color. To look up at the bright sky through the spreadiug branches of a cedar swamp, presents a play of colors long to be remembered. In autumn the leaves turn to a dull red color, and soon after fall. The cones of the shape shown in figure 1, are about an inch in diameter and contain numerous small seeds with narrow wings. A marked peculiarity of this tree is shown in figure 2. When, in its nativc swamps, having reached the hight of twenty to twenty-five feet, there arise from the roots numerous woody, conical excreseences, which in old trees are produced at the distance of thirty feet from the trunk. These are popularly known as "Cypress knees." According to Bartram, these are four, five, aud even six feet high, and from six inches to two feet in diameter at the base. They are covered with a smooth bark, and are always hollow. In localities where they occur, these "knees" are made use of as bee-hives, buckets, troughs, and other domestic utensils. Of what use these "knecs" arc to the tree is not known; they havc never heen found to sprout, and thus serve to propagatc the trce. The wood of this Cypress has a fine grain, aud when exposed assumes a pleasing, rcddish tint; being strong, elastie and easily worked, it is regarded as superior to that of any of the pincs, and when obtaiuable, is preferred to the White Pine for all the uscs for which that wood is usually employed. The wood is remarkably durable, and is highly valued for fence-posts. Shingles made from it have lasted forty years, and the shingle manufacture is an industry of considcrable importance. Hogsheads for sugar and molasses are madc from the wood. The timher has so many valuahle qualities that experiments should be made to ascertain how far North its culture may be profitable. As an ornamental tree it takes a place in the front rank. The tree is raised readily from seed, and grows rapidly while young. Several years ago, Mr. A. S. Fuller suggested to grape-growers, that they could provide themselves with excellent and durable stakes, by sowing the seeds of this tree. A tree for sometime grown in the nurseries as the Weeping Deciduous Cypress (*Glyptostrobus pendulus*), and highly valued for thc lawn, and as a street tree, is now regarded as a form of our Southern Cypress.



NEW GERMAN PANSIES.

The Pansy—Why Not More?

If there is a generally popular flower, it is the Pansy. In the old gardens it was something like a weed; the plants from self-sown seeds produced a few small flowers, quitc unlike the improved sorts of the prcsent day. The popularity of the Pansy in England, is shown by the fact that it has some twenty common names. Some of these have found their way to this country, and we have the flower known in old gardens as "Hearts-ease," "Johnny Jump Up" (corrupted to Johnny-jumper), "None-so-pretty" (often "Nancy-pretty"), and some others. Whether our improved Pansies were derived solely from *Viola tricolor*, or by crossing with other species, is a point upon which florists are not agreed. It is of little consequence so far as their cultivation is concerned. Our climate is not favorahle for the cultivation of the Pansy. If the seeds are sown in the open ground in spring, hy the time the plants are large enough to flower, the weather is so hot that, no matter of how good a strain the secds may have been, the flowers will be starved and small. To have fine results, wc must have our plants ready to flower either before hot weathcr in spring or after the intcnse heats are over. Consequently, for the early bloom, we must sow the seeds in a window-box or frame in March, and for a late flowering, the seeds should be sown in a partly shaded place in August or September. To have good Pansies, we must have rich soil, and whether raised in spring or fall, the seedlings can hardly have soil that is too rich. The catalogues offer different strains of seed. A catalogue hefore

us of a German specialist, gives some twenty distinct varieties that he has produced. We can only say, get good seeds and give good culture. Though usually treated as an annual, the Pansy is really a perennial. Any plants producing especially fine flowers, may be readily propagated and kept in cultivation as long as may be desired. The side shoots of thrifty plants, taken as cuttings, will strike root readily, and soon form flowering plants. Those who wish to excel in Pansy culture, will find it best to grow the plants in cold frames, where they may be protected from the severity of our winters, and be shaded from the intense heats of summer. The engraving shows the general appearance of what are known as the "New German Pansies," which present a great variety of strikingly beautiful colors. The Belgian Pansies, with large and beautifully marked flowers are also very fine. We know of no other flower that promises the cultivator such rich returns, with little labor, as the Pansy.

A Good Word for the Parsnip.

The parsnip is far from being popularized, though much older than the potato. It is a prime cattle food, good for beef and milk, and greedily eaten by swine. Potatoes are everywhere; they will grow about as plenty as corn and wheat. But the parsnip is the exception rather than the rule, even upon the farmer's table. A small patch is raised, of a bushel or two, if raised at all, to be dug in the early spring for a change of diet. It is a wholesome and appetizing vegetable, and could be used to advantage for half the year. We begin to use them fresh dug from the bed in October; and before the ground freezes them in, lay in a store of several bushels for winter use. In the spring we dig the reserve, and have parsnips until June. They are a dainty dish, stewed, and still better partially boiled, and then fried brown in long slices. A good crop can be had sown any time before June.

A New Branching Broccoli.

When we see, as was the case last spring, Brussels sprouts all the way from France offered in our markets, and know from our own experience that these are as readily raised as any other kind of cabbage, we think it time that our market gardeners should wake up and supply all needed garden products of home growth. It is almost ridiculous that Brussels sprouts should be imported to supply the demands of the New York market. Another form of cabbage which our gardeners almost ignore, is Broccoli. This is far more certain to head than cauliflower, and is by many esteemed as equal to



THE BRANCHING BROCCOLI.

that form of cabbage, usually so difficult to raise. Broccoli is common in European markets, and though we have not known of its importation, we should not be surprised to meet with imported Broccoli on the market stalls at any time. Among the Broccolis are some white varieties that can hardly be distinguished from cauliflower, though the hardiest kinds have a more or less purple color. A new variety has recently met with favor in France, called Branching Broccoli (*Broccoli branchu*). This, instead of forming a compact head, like the Broccolis, pushes out shoots as shown in the engraving. These shoots are cut while still tender, and before the flower buds upon them expand, are cooked in the same manner as asparagus, and are highly esteemed. The plant is also called the Asparagus Broccoli.

Lettuce Mildew.

Mr. Gus. Knock, Detroit, Mich., is troubled with a rot, affecting lettuce in the green-house and hot-beds. He writes us: "It started about six weeks ago at a time when we had no sunshine for two weeks. When warmer weather came it stopped spreading; but is now starting again on the larger lettuce. It makes a kind of web."—Mr. K.'s trouble is a mildew, from which market gardeners in some localities have suffered severely. This mildew is a near relative of the one infesting the grape-vines. When the mildewed lettuce is examined with a hand-lens, the white substance is seen to be a minute forest of small stems and branches. The mildew threads run through the substance of the lettuce leaves, afterwards come to the surface and form the branches, upon which multitudes of spores are borne. The mildew robs the lettuce of nourishment and causes it to decay. The infested leaves soon drop and become a rotten mass. Flowers of Sulphur has proved an effective remedy for the grape-mildew. This would doubtless help in staying the ravages of the lettuce mould, but the foliage is the portion eaten and, unless thoroughly washed after dusting with sulphur, it would not be agreeable to the taste, to say the least. Lime sprinkled upon the mildewed plants has proved effective. Several large lettuce-growers have found it to their interest to give up growing this crop for a few years, until the germs of the mildew were eradicated from the soil by starvation. It is a well-known fact, that all these mildews are plants of a low order, and continue their species by the production of countless spores. These spores perform the same physiological function that is assigned to seeds among other plants. Mildews thrive in a warm, moist atmosphere, conditions which obtain in a green-house or hot-bed. In general, the circumstances most favorable for the rapid growth of garden and field crops are the best for mildews. The same is true of rusts and smuts too frequently infesting the wheat, oat, and corn-fields. Mush, therefore, depends upon the weather, and this is not under man's control. The best that can be done is to use all possible preventive measures. If the hot-bed or green-house is foul with mildew, or other fungus germs, let it be thoroughly cleaned. With a hot-bed it will probably be the quickest way to build a new one on clean ground. The problem of how best to meet and conquer the many fungus pests of the farm and garden is a serious one. The rusts, mildews, moulds, smuts, blights, etc., are so very minute and hidden from ordinary sight, that their destructive work is usually done before the presence of these microscopic pests is observed.

Liver-leaf—or Hepatica.

One of the earliest flowers to be met with in rich woods in spring, all the way from Maine to Florida, is the Liver-leaf. It is sometimes called Liver-wort, and unfortunately so, as that name properly belongs to an order of flowerless plants. The Liver-leaf has long been known as Hepatica. The ancient "root and yarb" doctors supposed that plants indicated by some character, the diseases they would cure. Thus a plant with hard, strong seeds would be good for stone in the bladder; another with peculiarly speckled leaves, was for lung-diseases, and



THE GREAT HEPATICA (*Hepatica angulosa*).

the Liver-leaf, having a fancied resemblance to the liver in shape, was called *Hepatica* or Liver-leaf. It should be said by the way, that this modest little plant is quite harmless, and was never known to interfere with the liver of any one. Those eminent botanists, Bentham and Hooker, in their great work revising the genera of plants, finding no reason for keeping *Hepatica* as a distinct genus, have united it with *Anemone*. In a popular article we speak of the plants as Hepaticas, as they will long be known by that name in garden literature. As met with in the woods, the Liver-leaf has a tuft of leaves which, in the most common species, have three blunt lobes, *H. triloba*, but in some localities the lobes of the leaves are pointed, and this is regarded as a distinct species, *H. acutiloba*. The flowers, appearing soon after the snow melts away, have a peculiarly bright and cheery look. In the wild plants they are usually pale blue, but they present considerable variety, from pale purple to white, and occasionally pink flowers are met with. The common Liver-leaf (*Hepatica triloba*), is a native of Europe as well as of our own country, and European

florists have double forms in all colors from white to dark blue. Anything more beautiful than these double varieties is difficult to imagine. The com-

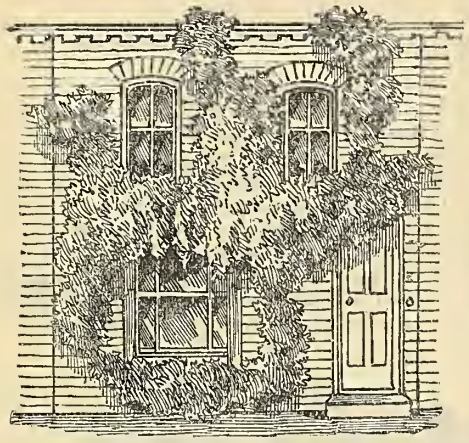


Fig. 1.—HOUSE COVERED WITH CREEPER.

mon single Liver-leaf is worthy of cultivation, on account of the earliness of its bright flowers, while the double ones are most exquisite, and well worthy of the trouble required in selecting for them a partly shaded place. Still more beautiful than our native species is the Great Hepatica, as it is called in English gardens. This (*H. angulosa*), is a native of Central Europe. The plant, its aspect at flowering being shown in the engraving, is much more robust and larger than our common species. Its flowers on strong stems, are twice the size of the other, and of the most "heavenly" blue. Some plants that had been kept in a cold frame during the winter, bloomed most satisfactorily with us this spring. It does not appear difficult to manage, and we hope it may prove to be a plant that we can commend for general cultivation.

The Use of Vines and Climbers.

No other woody plants can be made to produce ornamental effects so quickly as the various climbers. Their use upon porches and verandas as well as upon the house itself, has been frequently advocated in these columns, and we now would illustrate their employment in the grounds and in several ways as suggested by Mr. Elias A. Long. Very full lists from which to select are given in the

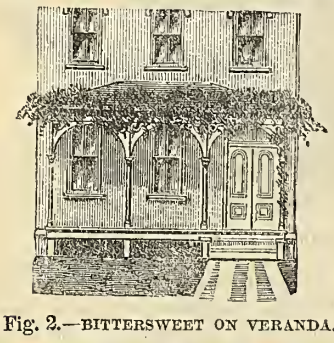


Fig. 2.—BITTERSWEET ON VERANDA.

catalogues, while two of the very best, so far as foliage is concerned, may be had without any expense beyond that of digging, as they are common over a large portion of the country. The two vines referred to are the Virginia Creeper (*Ampelopsis quinquefolia*), already planted to some extent, and the Climbing Bittersweet or Wax-work (*Celastrus scandens*), a vigorous grower with rich, dark-green foliage, and showy berries. This is a valuable climber, but is rarely seen in cultivation. Figure 1 shows how a very plain looking house may be improved by planting a Virginia creeper; figure 2 represents a veranda, along the edge of the roof of which a climbing Bittersweet has been trained. It may be well to give a caution here against allowing this vine to run upon trees. It winds itself around the branches with such force as to constrict them and check their growth, and if not removed will ultimately kill them. The manner in which vines can be used to cover gate posts is shown in figure 3, where, by the aid of the shears, the caps to the posts are kept in a rounded shape. A very pleasing fence to separate the ornamental portion of the grounds from the vegetable gardens and for other uses, is suggested in figure 4; posts are set at the desired distances apart, and connected by strong galvanized wire, and a Virginia creeper planted at each post. A little care given occasionally to training the vines along the wires will soon result in beautiful garlands of verdure. Figure 5 shows an archway leading to another part of the grounds. The frame-work of the arch may be made of saplings or other materials, which the vines will soon cover and conceal. The manner of draping a rustic archway of rough stones is illus-



Fig. 3.—VINES ON GATE POSTS.



Fig. 4.—A VIRGINIA CREEPER FENCE.

trated in figure 6. A very effective arbor may be made by constructing a frame or skeleton, as in figure 7, supported by posts at the corners. A vine at each post will convert the structure into a picturesque and pleasing embellishment. Such a frame-work for an arbor needs to be made strong, as it will have to support a great weight of foliage in summer, especially during rains.

Pruning and Thinning in the Pear Orchard.

BY A PRACTICAL GROWER.

It requires more common sense than art to prune properly. It is foolish to endeavor to make trees of many different varieties, conform to one style of growth. A tree, which is spreading in its nature, can not be made to adopt a pyramidal form. Remove interfering and dead branches, and shorten in wherever necessary. A little practice will soon enable a careful, intelligent man to do the work properly, and it is seldom that much wood need be cut away, especially if the pruning has been regularly done every year. To make the head more shapely or better balanced, it may be necessary to remove one or more limbs. This should be done with a fine, sharp, saw, after which cut the wound smooth and clean with a sharp knife, and cover it with a thick coat of good paint, to prevent bleeding, and to protect it from the influences of the atmosphere. Always use sharp instruments, and make clean cuts. As a rule, pruning shears are preferable to a knife. Carry a small stone in the pocket, for sharpening the knife or shears when the edge becomes dull. Thinning the fruit is most important. It costs no more to market a basket or crate of choice fruit, than that of inferior quality, while the price of the former is very much higher, and the sale quickly made. Nearly every fruit tree, when growing vigorously, sets more fruit each bearing year, than it can possibly perfect, and if the trees are permitted to carry it all, not only will the fruit be inferior in size and quality, but the trees may be injured. By thinning out the fruit properly, nearly or quite as much fruit in weight or measure, is secured, while the size and quality is of the best. Make three careful thinnings of the fruit. The first thinning is done about a week after the blossoms have fallen, removing about one-fourth of the fruit, the smallest being taken. Two to four weeks later, the trees are again gone over, and one-fourth of the remaining fruit removed, as before, selecting

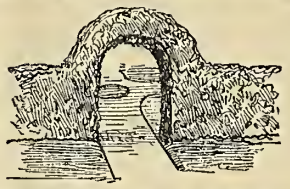


Fig. 5.—AN ARCHWAY OF VINES.

the poorest and smallest. Three or four weeks later, about the same per cent of the poorest specimens are removed. Leave enough fruit on the trees to make a good, heavy crop. Those who have never tried thinning out fruit in the orchard, will be much surprised at the good results.

Edgings in the Flower Garden.

The old-fashioned box-edging, with which the outlines of beds were formerly marked is now rarely seen. In northern localities it dies out in a severe winter, and unless taken up, divided and reset, it soon has an overgrown, shabby look. An excellent edging for a bed in the lawn, is ivy—the true European ivy. It may be kept pegged down closely and neatly trimmed, and forms, with its dark-green, a fine contrast with the grass on one side, and the flowers in the bed on the other. Another climber was used with very good effect on the grounds at the Centennial Exhibition—the Gold-netted Japanese Honeysuckle. This holds its

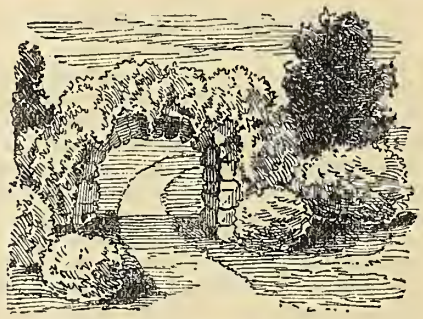


Fig. 6.—A RUSTIC ARCHWAY.

variegation admirably, and if trained on a low wire frame, makes a very showy edging. Another excellent edging plant is the Japanese *Retinispora plumosa aurea* of the catalogues. It grows readily from cuttings, and bears any amount of clipping. There are also some other forms of Arbor-vitæ, to

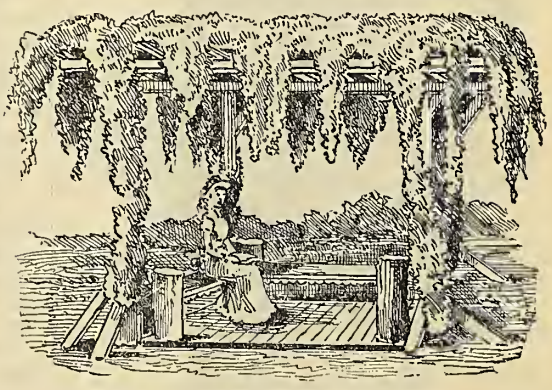


Fig. 7.—A CHEAP SUBSTANTIAL ARBOR.

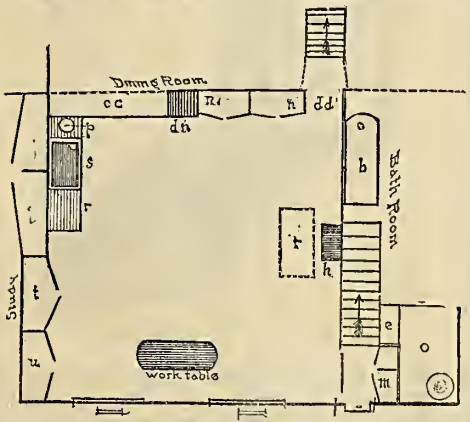
which the Retinispora really belongs, that may make serviceable edgings. The main point is to have a pleasing shrub, that will not be injured by the necessary pruning.



A Kitchen.

J. P. ROBERTS, PROFESSOR OF AGRICULTURE, CORNELL UNIVERSITY.

Among the many valuable suggestions for planning houses, given by the *American Agriculturist*, I have seen none for a kitchen complete in itself, that is, including pantry. I send a description of one which has been in use sometime, that appears about as near perfection as we can get anything. It is twelve feet square, exclusive of cupboards, has one hundred and forty-four square feet of shelving, all protected by doors from flies and dust; all within easy reach, and so divided that oranges and butter, milk and kerosene, may be kept separate. It is arranged to economize both steps and room, and have everything convenient. The rear entrance door *d*, *d*, is shielded from the outside gaze by the stairing in front of it. At the right is a meal chest *m*, with a double door cupboard above for lamps, etc., and has twenty-four square feet of shelving. The bath-room, containing the bath-tub *b*, is separated from the seat-room *o*, by a curtain. This room opens into the furnished bedroom on the right, and has an outside door and window for ventilation. At *e* in *o* are two drawers. Above the range *r*, is a large galvanized hood *h*, with a ten-



PLAN OF A KITCHEN.

inch pipe entering the chimney. This is just high enough to clear the head, and carries off steam and vapors rising from cooking.* The range has a water-back for supplying hot water to wash-tubs and sink. The door, *d*,*d*, leads straight ahead to the cellar; turning to the right you pass down the hall to the front door; to the left you pass through a door to the dining-room. This latter door swings both ways, and is always kept closed by springs. At *d*,*n*, is a dumb-waiter for bringing articles from the cellar; but when standing on a level, it furnishes a passage way by its shelves between the kitchen and dining-room, for passing dishes and food. On the right of this are two cupboards, *n*,*n*, with doors; these contain twenty square feet of shelving. On the left is the china closet, *c*,*c*, opening into the dining-room, at the dotted line. It has twenty-five square feet of shelving and two drawers. At *p* is a pump; *s* the sink, and *r* a drip board for draining dishes. Under these there is a closet for kettles, etc. On the back of them, on the other side of the wall, is a large book-case, opening into the study. At *t* and *u* are two large cupboards, built like the rest in the wall. These supply seventy-five square feet of shelving, and a place for a refrigerator.

*NOTE ON THE ABOVE.—The "Hood" over the range is a very good thing in theory, and sometimes in practice. We have seen them frequently, and found them failures in most cases, except where the escape pipe is in a separate flue from the smoke pipe of the range. Unless the chimney has a strong draft, the open hood pipe checks the flue too much. In any case a close-fitting slide or damper is needed to close the opening when starting a fire, and when from the direction of the wind or other cause, the range fire does not burn quickly enough.—ED.

Summer Notes on Dress.

The furs and woollens, which have made the long, cold winter endurable, should have been packed away weeks ago, before the mischievous little moths, whose works of darkness are so destructive, appear, which is at about this time. Moth powders, cedar shavings, tobacco, borax and camphor, are all good to pack with these winter articles, but if they are well shaken in the fresh air, and carefully folded in brown paper, or even newspapers, so well pasted that not a pin hole is left open, they are safe. Of course, some woollen clothing is needed through the summer months, in this variable climate of ours. One flannel suit is indispensable, for ladies and children, and often at the sea-shore, or by the mountains, it will be the dress most needed. The best materials are cashmere serge, and fine, smooth, lady's cloth, in écru, gray, golden-brown, and new shades of blue. These are used very much for bride's travelling dresses, and are tailor-made, which means that they are cut by tailors, to fit perfectly to the figure, and simply stitched, or bound with mohair braid. A vest of the same material is sometimes added, buttoned with small, flat, lasting buttons. These are imitated in the less expensive fine flannels, ottoman cloths, etc. For those who prefer, these come in stripes, checks, blocks and plaids, and are used for the skirts and sashes of children's dresses, with plain, Jersey waists, of brown, red, blue or black. Skirts of white muslin, or piqué, are worn by little girls with these Jerseys.

The various cotton fabrics, muslins, cambrics, satteens, and many others which now come in such pretty patterns, that we look at them as we look at a painting or embroidery, are expensive in the end—as the sun, and salt sea-air, will fade the choicest colors, and dampness destroys their beauty, and then the trouble and expense of having them "done up" is an important consideration. Besides the summer flannels already mentioned, there are inexpensive buntings, and nun's veiling, from thirty to fifty cents a yard, each of them a soft, thin, coarse-meshed woollen fabric in all the new shades, and are very desirable, as they will endure a long service without much care. White nun's veiling was worn very much last summer, and will doubtless be very popular this season. It can be made dressy enough for any occasion, by trimmings of silk-surah, satin, or velvet ribbons. Pale pink is also very pretty with golden-brown ribbons. Wrappers of all materials are made with a yoke, and the whole front and back gathered to it, falling loosely to the floor. This is comfortable, and for a lady's own rooms desirable, but it has too much the appearance of undress, and to walk through the street, even in a quiet, country town, in this costume, as we have seen some do, is, to say the least, unlady-like. Bonnets are little changed from last year. Figure 1, shows a child's brown straw hat faced with golden-brown velvet, loops of golden-brown ottoman ribbon on the left side with a small

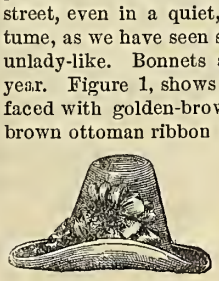


Fig. 1.

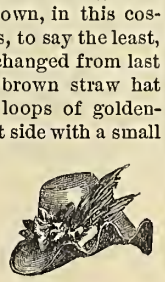


Fig. 2.

bunch of dandelions. A child's mixed straw hat is shown in figure 2. It may be either blue and white, or cardinal and white, faced with velvet to match; bows of ribbon and two small wings trim the outside. Figure 3 shows a lady's black chip bonnet, trimmed with black and gold-colored ostrich tips. It has black lace strings with gold spangles. The small capote, or little, round, close-fitting bonnet, is so becoming that ladies do not like to give it up, even for the sake of "a change." It should match the walking dress, and the trimming of flowers may be so well chosen, that it can be changed from one to another foundation to suit the dress. It would seem that every known flower, leaf, or grass, is represented artificially. Many that are unknown, must be the creation of artists, whose utmost skill must fail in efforts to compete with the great Father, who gave the flowers life. These are bunched together on the top of the bonnet, or a little to the left side. Among the novelties for trimming are bunches of garden vegetables and fruits, plums, apples, etc. Ribbons are used two inches wide for strings. The fronts have puffs of satin or velvet, and some have wreaths of fine flowers all around. Gold and silver tinsel and spangles are used on black lace bonnets with good effect. Gilt wire frames are used also. Hats are little worn by ladies beyond forty years of age, excepting shade hats. They are of a high crown shape, with round, flat brim, and are trimmed with a bunch of feathers or flowers, on the left side. Some are turned up on one side. Bonnets and hats are of all colors and some straws are gilded, and bronzed. Those trimmed with black lace and flowers are very pretty. Jet, for all trimmings, is worn more than ever. There are exquisite patterns of jetted net, for scarfs, vests, basques, and also for sleeves, and open fronts to black silk dresses. The basques have of course a silk lining, which may be high or low in the neck. Belts are worn with round, full waists, for wash dresses, with clasps of old silver jewelry, to represent old silver coins, which are very fashionable in pins, collar-buttons and bracelets. Another old fashion revived is mahogany furniture, and many old, rich articles, long considered "out of date," will be found of great value, as this wood, like a lovely character, grows more beautiful with age. ETHEL STONE.



Fig. 3.

Fashions in Letter Paper and Cards.

Though plain white writing paper, especially the heavy English kind, is not entirely out of date, very many prefer the tinted, or with an odd design in the corner, and sometimes covering the entire outer page, as a fine-spun spider's web, and there are dozens of styles to select from. "Ragged-edged" paper, which has had a run for a year or more, is still seen, but "scorched paper" is newer, and promises to become very fashionable. The edges look as if held to the fire until slightly browned. This is more curious than pretty; but eccentricity rules the hour, and anything novel takes at once.—"Wood paper" is another popular style, imitating the grain and color of birch-bark, maple, pine, and other woods. This has the head of some animal on both sheet and envelope, as a deer, dog, or horse.—"Robin-egg-blue" paper is very tasteful, and often has painted or stamped in the upper left-hand corner a pretty little bird's nest containing four tiny eggs, with a robin redbreast perched on the side. But the daintiest design of all is a silver four-leaf clover with an ordinary pin run through it as though pinning it to the sheet.—Vellum paper is the handsomest and most expensive of any, and is a pleasure to write upon, while the vellum envelopes are exceptionally fine, particularly for invitations. They are now white, and are bound with delicately tinted satin ribbon, which is tied in a knot, and sealed with wax of the same shade. Fashionable people now always seal their letters, or more frequently apply the imitation crimson seals with an initial. These are made of paper waxed over, and come by the box. These are much less trouble than the old-time candle, wax and seal, which required considerable skill and practice, while these fasten a letter securely and give a style to the epistle.

Note cards are larger than formerly, and fold over, with a lap like envelopes; but those for af-

ternoon teas, are six by four inches. They are unique in smoke color, with a gold kettle in one corner and clouds of steam pouring from the spout. On the smoke is printed in zig-zag letters:

"Come to tea
At three
And see me."

Another pretty design for these "kettle-drum" invitations is a gaily illuminated cup and saucer, with "five o'clock tea," inscribed underneath. The date and residence are written in the right-hand corner, and the hostess' name in the left.—Visiting cards for ladies are very large now, and those for gentlemen very small. The name is engraved in the plainest script, and the address and reception-day placed in the lower right-hand corner.

Pretty *sachets* come for perfuming writing-paper, made of rose or violet powder, sprinkled in a fold of cotton batting, and covered with two contrasting shades of ribbon, with a bow in one corner. These are questionable luxuries; as a general thing, scented note-paper is now considered vulgar.

Cockroaches and Croton Bugs.

The great pests of the house-keeper, especially in cities and seaport towns, are the cockroach and the Croton bug. Many suppose that the latter, from its smaller size is the young of the other, and we have often been asked if the two are not different forms of the same insect. There are several cockroaches, some of which lead an out-door life. The common cockroach is supposed to have come from some part of the East; its native country is not certainly known, though naturalists have named it the Oriental cockroach (*Blatta orientalis*). It infests ships and is thus carried all over the world. In England it is generally called the Black Beetle, though it is not closely related to the beetles. Cockroaches feed upon almost every animal and vegetable substance, and are very destructive. Articles of food that they do not devour they render ill-smelling and worthless. They give off by the mouth a dark-colored liquid which has a most disgusting odor, and this is imparted to articles kept in places when the insects are numerous. Though universally detested, the cockroach has some things said in its favor. It is very fond of another domestic pest, the bed-bugs, catching and devouring them with avidity; on this account they are sometimes tolerated on board ships as the lesser of two evils. The female insect (fig. 2), is distinguished from the male (fig.1), by the imperfect development of her wings; the engravings show the difference in this respect. The manner the cockroach deposits its eggs is quite different from that of other insects, and is an interesting point in its history. For insects to cement their eggs together into a mass, after they are laid, is not unusual, but the female cockroach deposits hers already inclosed in an envelope or egg-case. This, which is shown at *a* and *b* in figure 2, is about three-eighths of an inch long and half as wide. Its shape has been likened to that of an apple turn-over; it contains sixteen eggs. The female carries this case about with her for several days after it is laid, and at last, finding a suitable place, she glues it fast and leaves it. A few days after, the young insects are hatched and they make their escape at the straight edge of the case. In their early life the cockroaches are white, and do not assume their regular brown color until several days old. The insect called Croton bug in this country, it having become numerous in New York City soon after the introduction of Croton water, is in England known as the field-cockroach, as it lives out of doors as well as in houses. In Russia, Croton bugs are known as "Prussians." Its native country is uncertain, though its scientific name *Blatta* (*Ectobia* of some)



Fig. 1.—MALE COCKROACH.

Germanica supposes it to be Germany. It is much smaller than the cockroach, and deposits its eggs in a similar manner, the egg-cases being only one-fourth of an inch long; they contain thirty eggs. Both these insects like dark, warm and damp places in which to hide, and the introduction of water into houses, especially where hot-water pipes run to every story, has greatly increased the number of such retreats and aided in the multiplication of these insects. Country houses may be freed of both insects with little difficulty, but city house-keepers, if they kill off all that are in the house at the time, will soon have it restocked by the neighbors. Various poisons for destroying the insects and different traps are in use, but nothing is so effective as Pyrethrum or Persian Insect Powder. This should be plentifully blown into every hole, crack and cranny. It will drive the insects, young and old, from their hiding places, and in a few minutes they will drop to the floor, some will die and others only will be stupified, and if given time will recover, hence all should be swept up and burned within a few hours. Another application of the powder should be made in about a week for the benefit of those that escaped, or may have hatched since the first. There is no difficulty in clearing an isolated house of these pests, if the use of the powder is followed up as long as any of the enemy are seen. All boxes, trunks and parcels brought into the house, especially those from a city, should be examined for these insects to prevent the founding of a new colony.

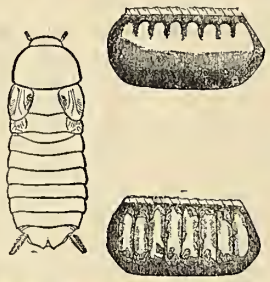


Fig. 2.—FEMALE COCKROACH AND EGG-CASES.

The Back-Yard.

EBEN E. REXFORD.

Many back-yards are abominations to the eye and nose. One finds in them all sorts of litter and refuse from oyster cans to old boots. Here the slops of the kitchen are poured to increase the odors which ought to warn every thoughtful person of the malarial influence breeding there, to break out eventually in fevers, or diphtheria. If any member of the family dies from one of these diseases, his death is probably lamented as a "mysterious dispensation of Providence," but the minister would say if he were to visit the back-yard, that death was caused solely by a violation of hygienic laws. A very strong argument against a dirty back-yard, is the spirit of deception which it is apt to foster in the young members of the family, for it is a constant deceit to present a clean and attractive front-yard to the gaze of the passers, while the back-yard is not fit to be seen. Children should be taught to be clean for the sake of cleanliness, and not because outsiders are likely to criticise them. The best plan is to have a hogshead or large box fitted up in one corner of the yard, and make it a rule to throw into this old cans, boots, broken dishes, and all such rubbish, and when there is a great accumulation, to bury or burn it. Do not allow anything to be thrown about. Have drains made to convey all slops entirely away from the house. Make good walks, and let the ground have a fine covering of grass, not weeds. Put up strong supports for the clothes line. Keep the fence in repair, and plant currant bushes near it. Set vines about the refuse barrel, and train them over it until it is hidden. If you have a receptacle for ashes, let it be something which can be shut up, not a row of old barrels to offend the eye, and give out a cloud of ashes every time the wind blows. Make it a rule to have the back-yard at all times as clean as the front one.

A VERY FINE OMELET.—Stir a tablespoonful of flour into one-quarter tumbler of milk to a paste, and mix this with three-quarters of a tumblerful of boiling milk, adding a teaspoonful of salt and a tablespoonful of butter, then set it aside to cool. Mince a little ham, and to each two teaspoonfuls add a teaspoonful of finely chopped parsley, and add it to the milk. Beat the yolks of six eggs very light, stir into the thickened milk, adding finally the whites of the eggs beaten to a froth. Cook in a greased skillet or pan on the stove.

Wall Cabinet.

Mr. "W. J. E.," Barclay, Kans., sends us diagrams of a cabinet of his own construction, and writes: It is very easily made by any one having a scroll

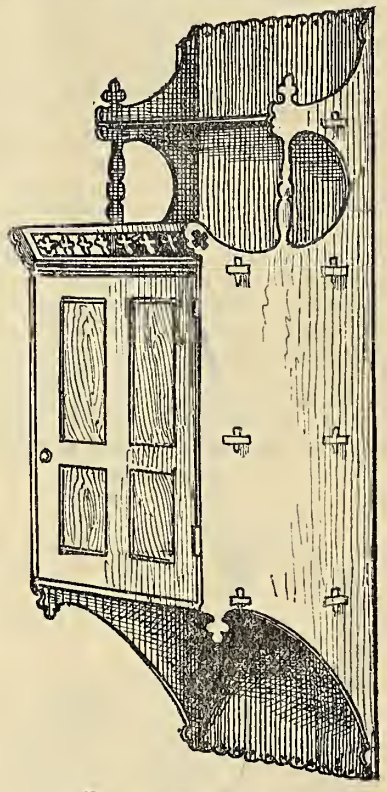


Fig. 1.—A WALL CABINET.

saw. It has a more finished appearance than the one given in January (p. 24), and may suit some better. The shelf above, four inches wide, is convenient for bric-a-brac, or any small articles. The cabinet may be of walnut or any three-eighth-inch wood. Length of back and sides thirty inches, width of sides seven inches. Length of shelves

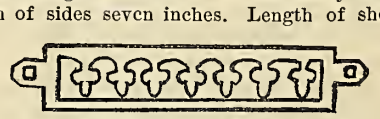


Fig. 2.—ORNAMENT ABOVE DOOR.

twelve inches, with shoulders one inch long and one inch wide, having slots cut for pins, figs. 2 and 3. Ornament over the door two and a quarter inches wide.—The door is in one piece, sawed in panels with strips screwed to back to strengthen it and hold glass. One light of glass, ten by twelve, placed on back of the door is much more convenient than several small lights, and equally as good. All is fastened together by the wooden pins, except the back to door.—To lay out the ornamental pattern, cut a card or small piece of pasteboard in shape of an acorn or leaf and mark around it; you will then get the designs all alike.—The size may be changed to suit taste or convenience.

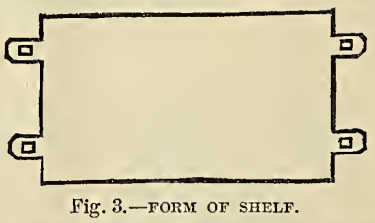


Fig. 3.—FORM OF SHELF.



More than Strawberries and Cream.

AGNES (CARR) SAGE.

"Oh, Flora don't!" exclaimed little Edith Raymond, with a distressed face, as she and her sister stood before the dressing-case in the spare bedroom, where they had come to view their new embroidered muslins in the long mirror. — "Why not?" asked Flora, turning round and round a sparkling diamond ring that she had taken from a small jewel casket.—"I think cousin Emily would lend it to me if she were here, and I should so like to wear it to the festival."—"But you might lose it or something," urged Edith, "and that would be dreadful, for you know how much our cousin thinks of that ring; she hardly ever takes it off, and must have forgotten it. Put it back, Florie."

But Flora hesitated, and consequently was lost. —"Nellie Barnes is so proud of that pearl her grandfather gave her," she said, "I would like to show her other people can also have nice things, and we are to be at the same table. I shall only borrow it, and cousin Emily need never know it, for she will not be back until to-morrow. That is," she added, "unless you see fit to tell her."—"I am not a tell-tale!" cried Edith, rather indignantly, and her countenance wore a troubled look as Flora hastily donned her hat and gloves, and ran down stairs with the ring still on her finger. But Edith had to hurry, and her disturbed thoughts were somewhat dispelled by her father, who met them at the door and handed each girl a bright two dollar-and-a-half gold piece to spend at the Fair.—"Thank you, thank you, papa!" they both cried, "we can buy lots of pretty things with this."—"See that you make good waitresses, and do your duty by the church," he said, and with a laughing rejoinder they ran gaily down the steps.

The Strawberry Festival for the benefit of the church was the great event of the summer in Blissville, in which old and young were all interested, while the girls considered it an honor to be chosen to serve behind the tables. This year the Raymonds were very happy, Flora having been selected for the refreshment table and Edith for the floral bower.

"I am so glad it is such a pleasant day," remarked the latter, looking up at the blue sky, "and the roses and strawberries are just in their prime."—"And it is so warm, we shall sell quantities of ice-cream," added Flora, "but do look at those forlorn little wretches!"—The objects thus described were a sallow-faced boy, with a pair of large, mournful, dark eyes, who was patiently turning the handle of a decidedly squeaky hand-organ, and a little brown monkey in a red coat, hopping briskly up and down to the doleful strains, occasionally stopping to circulate his small cap among the spectators gathered around.—"Poor things!" cried Edith, who was very tender-hearted. "I must give them a penny," and she darted into the crowd and dropped a coin in the tiny hat.—"You will be rid of all your money before you get to the festival," said Flora, as she came back flushed and breathless.—"No, indeed, I have my gold piece safe, and they did look so wretched I believe that boy is half starved."—"Nonsense! but here we are at the school-house and you must turn your mind from rags and monkeys to strawberries and cream."

A large room on the ground-floor of the village academy was the scene of the festivities, and it appeared very gay and attractive as the girls entered. The hall was decked with flags and evergreens, and fragrant with the odors of a thousand flowers, massed in the picturesque bower in the centre; while the tables were hardly less tempting with their display of fancy articles, beautifully frosted cakes, mounds of luscious scarlet berries, and pyramids of ice-cream. Flora was instantly taken possession of by her schoolmates and borne off to the refreshment board, where she soon had her hands full dealing out cream to the juveniles, who considered it the greatest treat of all. She had almost forgotten her borrowed plumes when Nellie Barnes, who was assisting her suddenly exclaimed: "Why, Florie, what a lovely ring! Where did you get it? Is it yours?"—The words brought the other girls crowding round to admire the stone, and fired a perfect blast of questions upon Flora, who found their inquisitiveness more than she had counted upon. She was ashamed to confess how she came by it, and parried the inquiries as well as she could, saying with a laugh: "Don't you wish you knew?" and "whose should it be if not mine? Do you think, Nell, you are the only one that can have a new ring?" although she felt at the time this was uncomfortably like a fib, and she had always prided herself upon her truth and straightforwardness.

"It is a beauty!" said Minnie Bell, "and quite throws Nellie's into the shade."—"But I don't make any mystery about mine," said Nellie, vexed by the remark, "and I am sure it is quite handsome enough for a little girl. My mamma would not allow me to wear diamonds."—"Sour grapes!" sneered Flora, turning away to supply a call for cake, but she sadly felt this disagreement with her "bosom friend," for the coolness increased and one thing led to another, until by evening both girls were chillingly polite, never addressing each other when it could be avoided, as is the fashion school-girls have of showing their displeasure.

Edith, meanwhile, was the merriest little flower-fay in the room, fluttering about the hall with her dainty nosegays, and selling more bouquets by her pretty coaxing manner and silvery tongue, than for the beauty of the flowers themselves. She was a general favorite, and had a bevy of boys and girls in her train wherever she went.—"I have sold all my flowers," she cried, about eight o'clock, coming up to her sister, "and oh, I have had such fun! but Florie, please lend me fifteen cents? I will pay it back out of my next week's allowance."

"What have you done with all your money?" asked Flora coldly, "you had as much as I did."—"Let me see," considered Edith, counting upon her fingers. "I bought a pin-cushion for mamma,



A PRECIOUS DISH OF STRAWBERRIES AND CREAM.

Drawn and Engraved for the American Agriculturist.

and an apron for nurse, some candy for little Dottie Ellis, and a bunch of violets for poor lame Ned Carter. I believe that is all, except a few grabs I took in the grab-bag, and a glass of lemonade. But I have'nt a cent left, and I want to get some strawberries and cream for that boy with the monkey. He is standing right outside the window, looking in with such a wistful face."—"Well, I think you have thrown away enough money," said Flora, "and I shan't encourage you in it. For all you know, that little tramp may be a thief and

will run off with the spoon. But I will pay for a plate of cream for yourself if you like it and have had none."—"I don't want it for myself," said Edith, almost crying, "and I think you are very heart-hearted, Florie," at which Flora turned on her heel with her head higher in the air than ever.

"Hey-day, what is all this?" asked a hearty voice close by, and the little flower-girl looked up to see her uncle standing beside her.—"Oh! Uncle John, is that you? I am so glad you have come!"—"That's pleasant news!" but what can I do for you? You don't look as happy as I expected."—"I want some strawberries and cream," said Edith shyly, shaking her curls over her face.—"Is that all? Here, Flora, give us a saucer of your best French cream, and pile it up well with strawberries, mind!" while Edith's eye twinkled with mischief as her sister, with a large spoon, ladled out the cream from a huge freezer behind the table. But Uncle John gazed in amazement when, just as he expected his little niece to pop a big red berry she was sugaring, into her own rosy mouth, she suddenly seized the dish and vanished through the door-way, flinging back a merry laugh and roguish glance at him over her shoulder.

Poor little Giovanni, the organ-grinder, was quite as miserable as he looked; for he had been lured away from his parents and home in sunny Italy, and brought to a strange land by a harsh task-master, who sent him wandering over the country with Chico, his little monkey and only friend, to earn the few pennies that charitable people were willing to pay him. So it was like a glimpse into fairy-land this warm summer evening, when with Chico buttoned up inside his jacket, he wandered near the brilliantly lighted school-house and peeped through the window at the gay scene.—"Ze flowers look like my own country, and ze people zey are all so happy." And a tear rolled softly down the dusky cheek. But there is a flutter of a white dress near by, and a soft voice says: "Poor boy! see, I have brought you some strawberries and cream."

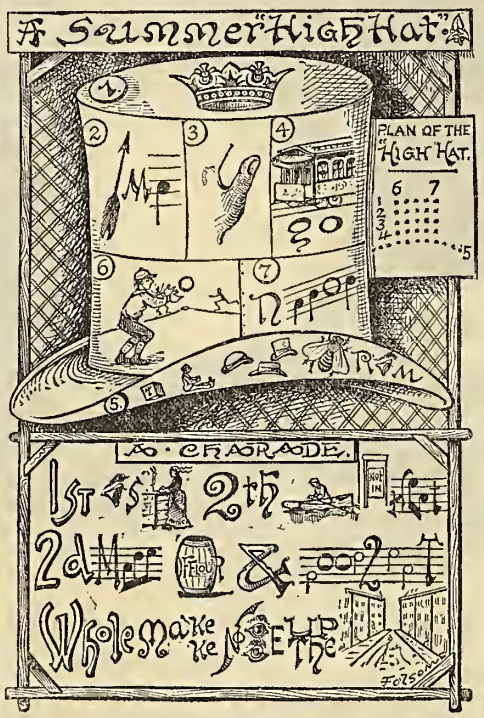
With a start the little Italian turns and meets a pair of pitying grey eyes gazing into his, while two chubby hands push the plate into his, as the girl says: "There, eat it quick before it melts."—"Oh, mees, tank you, tank you," he stammers, while a brown paw darts from beneath his coat and seizes a berry. "Chico and I tanks you a tousand times."—"I hope they will taste good," and the little maid, like a benevolent fairy, slips away.

"But what have you got there, my Chico?" he suddenly asked in Italian, as the monkey after a spoonful of cream took something from his mouth. "There are no stones in these berries."—But whatever it was, the monkey's brown paw closed tightly over it, and he only chattered as he deposited it in the little bag tied about his waist and in which he carried his pennies, and thinking no more of the matter, Giovianni carried his plate and spoon to the door, and lingered for a moment to catch a glimpse of the pretty little lady with the bonny brown curls. But Edith was not to be seen, for on her returning to the hall, after treating her young protegé, she was met by Flora with a frightened face, who drew her into a corner crying. "Oh! Edith, what shall I do! The diamond is gone from Cousin Emily's ring."—"Flora!" It was all Edith could say, and she stood aghast as her sister held up the golden hoop with its disfiguring cavity.—"I am afraid to go home," sobbed the frightened girl, "and it has been the most miserable day I ever spent. I have quarreled with Nellie, almost told a falsehood, and now don't dare to look Cousin Emily in the face, and all on account of this stupid ring, which I wish I had never seen."—"Don't cry," said Edith, and we will have a search for it," and she did hunt carefully under the tables and benches, but all in vain, and it was a very sorrowful pair of sisters that wended their way homeward with Uncle John. So sad indeed was Edith, that she did not see two dark eyes peering at her from behind a tree, though an unobserved listener heard her say: "Oh! dear, I don't think I shall ever be happy until the diamond is found."

It was a long, dreary night to both girls, but Flora tossed and turned restlessly, until the morning light creeped through the shutters, when she fell into a troubled sleep. So it was a very white face she brought to the breakfast table, and Edith's was hardly less anxious.—"I shan't approve of festivals if they rob you of your roses in this way," said Mr. Raymond, observing the pale cheeks, but at that moment a maid entered to say: "A wild-looking boy was in the kitchen, who begged to see the lady with brown curls." Wonderingly Edith obeyed the summons, and in a few moments returned radiant, dragging the little Italian after her and crying joyfully: "Oh! Flora it is found! The dear little monkey found it and this good boy brought it back quite safe."—And in amazement all listened to Giovanni's story, told in broken English.

"I laugh when I find it," said Giovanni, showing his white teeth. "And I tinke now I sell this for much moneys, and Chico and I go home to Italy. But zen I remember ze words of ze young lady, who was so heavenly kind to us, 'I never be happy till ze diamond is found!' So I can't make her sad, and I comes right avay it is day."—"It was a fortunate thing for you, Flora, that it fell into such honest hands," said Mrs. Raymond, with a reproachful look towards her oldest daughter; "for had some of our rough village boys found it, I fear we never should have seen it again," while Edith whispered exultingly: "You see he is not a thief after all."—Flora blushed but made no reply, and busied herself in preparing a bountiful breakfast for Chico and his young master, who were soon revelling in unaccustomed luxuries.

And that was not the end, for Mr. Raymond and Uncle John interested themselves in the young lad, succeeded in freeing him from his cruel master or Padrone; and a month later the whole family went to bid him farewell on the deck of a noble steamer, bound for the land of flowers and maccaroni. Clad in a neat suit and with his sparkling face turned toward home, he looked like a different being from the ragged little waif, who had mournfully ground away at his organ on the street corner; and with hearts and lips overflowing, he bade his benefactors "good-bye," but his last glance and the last wave of Chico's paw was for the sweet little girl, who on that summer evening had come to him like a good fairy, bearing to him a "mine of wealth," buried in strawberries and cream.



An Illustrated Rebus.—THE HIGH HAT.—Make words of the seven pictures on the hat, and place as shown in the small diagram. The words when placed will form the shape of a high hat. No. 5 is made with more than one word. Nos. 6 and 7 are to be read down.

CHARADE.—Read as a rebus and the first, second, and whole word will be found as in printed charades. The answer is an article used in mid-summer.

The Doctor's Talks.

I suppose that all of the little army who competed for the Weed List Prizes are desirous of hearing more about them. To make a connected story, I must go back to September of last year. In that number, on page 419, under the heading

"HOW MANY WEEDS DO YOU KNOW?"

I asked for lists of the common names "of all you could get names for during this month and next." I said: "Please observe, what I want is, the names common in your localities, of the weeds of your place, whether on the farm or growing on the roadsides," but unfortunately failed to say what plants should be regarded as weeds. "What is a weed?" has long been a question. One of the best definitions, given many years ago, is: "A plant out of place." Another is: "Every plant that grows in a field, other than that of which the husbandman sowed the seed, is a weed." Still another is: "A plant which interferes with the cultivation of other plants." None of these definitions meet all cases, but all indicate that plants in the way of cultivated plants are weeds.

A PLANT MAY BE A WEED OR NOT.

It is not its kind or character that makes a plant a weed. Parsnip, carrot and horseradish, are examples. We know how useful all three are in cultivation, yet when allowed to grow wild, they are among our worst weeds. One of the girls was told by her father that "any plant not cultivated is a weed," and other competitors appear to have acted upon that definition, as many lists contain numerous plants not known to grow in cultivated grounds. It does not seem fair to class the white and yellow water lilies as weeds, or to place oaks, magnolias, maples, and other forest trees in this class. Finding that most of the lists contained the names of plants never found in cultivated grounds, but are merely wild plants, before any fair comparison could be made, all plants never known as weeds were stricken from the various lists. This required a careful scrutiny of every list, and consumed a great deal of time.

THE WHOLE NUMBER OF LISTS

was five hundred and eighteen, and a formidable heap they made. The letters were numbered and marked with the date on which they were received. A record was then made, giving number of letter, name of writer, Post-office, State, number of plants, plants, not weeds, and real weeds, with remarks. The lowest number given in any list is ten; there is one of thirteen, and two of fourteen, and quite a number below twenty. The largest list, Miss Pepoon's, of Illinois, has two hundred and eighty names, but as seventy-four of these are not properly weeds, the number of real weeds is not so great as in one other, though a most excellent, carefully-made list. Between the above extremes, the largest number of the lists were those recording between sixty and one hundred names. I offered five prizes in books, and have extended the number to nine. The names of these, who will receive their books long before they see this, are given with all needed information in the table below:

Name.	*Post-offices.*	*State.*	*No of P'ts.*	*Not Wds*	*Wds*
Maggie E. Benton,	Livingston,	Mo.,	250	25	225
Mamie Pepoon,	Warren,	Ill.,	280	74	206
*James F. ason,	Bellaire,	Ohio,	210	34	176
†Annie Pickets,	Gibson,	Ill.,	189	15	174
‡Lucy Peck,	Newtown,	Conn.,	204	39	165
Frank J. Clough,	Tolland,	Conn.,	212	48	164
Marie L. Hoyt,	Turnpike,	N. C.,	157	00	157
William Savage,	Vega,	Iowa,	152	00	152
§William Pickardt,	Portchester,	N. Y.,	162	12	150
‖Elijah Harlan,	Wilsonville,	Iowa,	149	2	147

ONE MORE WORD ABOUT WEED LISTS.

Having a use for the common names for the weeds of the country, I offered prizes for the best lists. My success has been very far beyond my ex-

*Remarkably good for a boy of thirteen.

†Jennie Miles, Eliza and Eva Upp, and Annie Pickets forwarded their lists in the same envelope. Miss Pickets' list is the only one long enough to secure an award.

‡Exceptionally well written.

§I can not allow "old boys"—you claim to be thirty-two—to compete with our boys and girls. Still I thank you for your most excellent and instructive list.

‖Remarkably good.

pectations. While but a few could get a prize, every one who sent a list has done me good service.

The shorter lists which did not take a prize, promise to be as useful to me as the longer ones, and every one who has sent one of a kind, small or large, has my most hearty thanks. There are many weeds about which I wish to ask questions, and many of you will receive applications during the season, and I do not doubt that all of you will gladly aid me.



Fig. 1.—THE HOOPOE.

GETTING READY FOR THE FOURTH.

Every youngster knows that there is but one Fourth deserving of being called "The Fourth," and that is the day following the third of July, often called "The day before the Fourth." I assume that every American boy, if he is any sort of a boy, will celebrate the Fourth. Celebrating, with many boys, consists in not doing those things they do on other days, or in doing something not done on other days. The usual result is, very tired boys. As there is of course to be a celebration, the way to make it a good one is given below.

BEGIN TO GET READY NOW.

"It's too early," do you say? I say "not a day too soon." In my youngster days, I had much to do with celebrations of various kinds; excursions, pic-nics, and other affairs which brought many people together. In my experience I found that those celebrations were most successful and enjoyable, for which there had been, what boys sometimes call "a good ready." Besides, there is often as much enjoyment in preparing for a good time as there is in the time itself.

The Fourth of July is our one, only really grand national holiday, and it should be made the most of, not only by every boy and girl in the great *American Agriculturist* family, but by all others in the land. The greatest enjoyment of the day cannot be had unless "ways and means" are well considered, and the plans thought over beforehand.

THE DAY MUST BE CELEBRATED,—BUT HOW?

Boys in cities and villages often begin to save up their money, months in advance, to buy fire-crackers for the Fourth. Not only crackers, but pistols, guns, and even cannon are used to make a noise and disturb people who like quiet. Why fire-crackers, those spiteful little snappers, should be used to celebrate the great American Holiday, I could never discover. They are employed in the religious services of the "Heathen Chinee," and should be left to their proper use. Besides they are dangerous, and if for no other reason, you should have nothing to do with them. American boys and girls should be too sensible to think that making a noise, a smoke and a smell, is the best way of celebrating the anniversary of the greatest day in the world's modern history. By far the best way at least for boys and girls in the country, is to have a neighborhood celebration. Such things do not start themselves. Let some boy ask two or three others to join him, and arrange all the plans. A most sensible celebration is a Fourth of July Pic-nic, to which each one brings his or her own provisions. The first point to decide is, the place for the pic-nic. A grove is best, at any rate let it be a pleasant spot. Having selected the place, invite all the youngsters in the neighborhood, taking care that not one is overlooked. Let it be understood that older people will be welcome. Some of the boys should see to putting the ground in order, moving away the brush and clearing off the rubbish; others should take charge of providing swings; every other preparation should be assigned to some one, and not be left until the last day. The object of the celebration being for every one to have a good time, the exercises should not be long or formal. The most important should be the reading of

THE DECLARATION OF INDEPENDENCE.

This gives the reasons for regarding the day as above all other days, and every boy and girl should read it, or hear it read, at least once a year. Select the reader well beforehand—one who can read distinctly, and he should rehearse his part beforehand.

THE DOCTOR.

Some Interesting Birds.

THE HOOPOE (figure 1), is a native of Africa, and migrates to the continent of Europe in summer, and is occasionally met with in England. It is about as large as the Thrush; its long, slender bill covers a tongue which is forked at the tip and can be greatly extended; this it uses to extract the nectar from flowers. The plumage is very handsome, being variegated with rich brown and purple, black and white. Upon the head is a crest of feathers, which the bird can erect at will; the feathers of this are orange-colored, fading to nearly white with black at the tips. The note of the bird is like *hoop, hoop*, repeated several times in a low, soft tone; it is this note that gives the bird its common name. The male Hoopoe also produces instrumental music; it first draws in air and by tapping the end of its beak down a peculiar sound is given out.

THE LYRE-BIRD (fig. 2), of New South Wales, is the size of a pheasant, and is remarkable for the length and form of its tail. Twelve tail-feathers have long and slender shafts with the barbs very far apart. The two central feathers have a plume on only one side; the outer two are longer and broader than the others, and so curved that the two form a figure like the outline of an ancient lyre. The general colors are brown and black, with reddish spots on the two broad feathers of the tail. It is very shy, hiding among the brush. The Lyre-bird has a pleasing song, and is said to imitate other birds; it is by far the largest song-bird known.

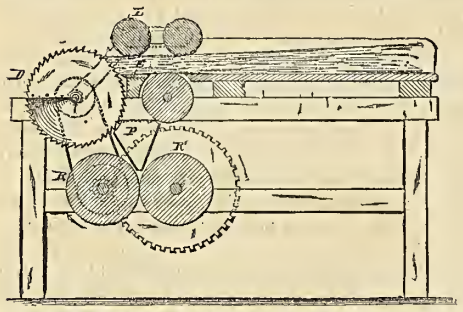
The cocks are quite war-like; one traveller states that, hearing a great noise, he cautiously crawled along to learn the cause, and discovered about one hundred and fifty magnificent Lyre cocks "ranged in order of battle and fighting with indescribable fury." The Lyre-bird is unusually large for a song-bird, and it presents another exception to the usual rule among birds. Songsters are generally very plain birds; they rely upon their voice to make them attractive and do not need showy plumage. This bird is doubly provided, having a rich voice and fine feathers.



Fig. 2.—THE LYRE-BIRD.

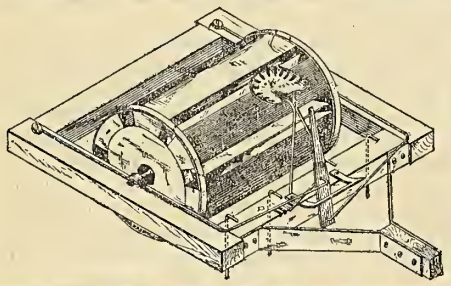
OUR RECORD
OF
Recent Agricultural Inventions.

Straw Cutter.—D. M. Cummings, Enfield, N. H. Feb. 5; No. 293,150. In this cutter the straw, fed between the binding roll *l*, and the flat blade *e*, is cut up by



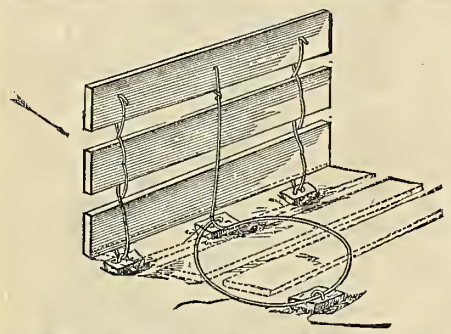
the spiral saw *d*, from which it passes through the spout *p*, to the hard rolls *r*, *r*, which complete its disintegration. The patent covers the combination and gearing of these parts.

Stalk Chopper.—W. H. Mercer, Mercer, S. C. Feb. 5; No. 293,055. The knives of this chopper are attached to a cylinder, which is rigidly fixed to a shaft. Surrounding the knives is a slotted cylinder loosely hung on the shaft, so that when in use, the cutters of the inner cylinder will project through the lower slots, far



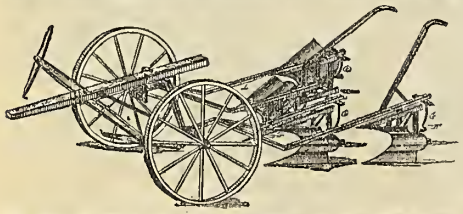
enough to cut the stalks as they lie upon the ground. To protect the knives when the machine has to be drawn upon a hard road, sliding plugs are placed on the ends of the shaft, and means are provided for driving the plugs into the end openings of the outer cylinder, so as to prevent its dropping and exposing the cutters.

Flood Fence.—Elizabeth S. Garrett, Downeyville, Ind. Feb. 5; No. 293,003. The engraving shows a single panel of this flood fence, the dotted lines indi-



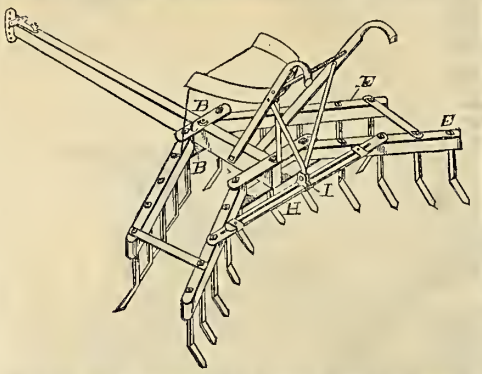
cating the position of the parts when the fence is pressed down by the force of the current. The inventor claims the hinged panel, the anchors, the bent spring, and their fastenings.

Cultivator.—Dominicus Brix, Geneseo, Ill. Feb. 5; No. 293,979. The patented features of this cultivator lie in the means for adjusting the position of the plows. The forward standard or hanger is pivoted at its up-



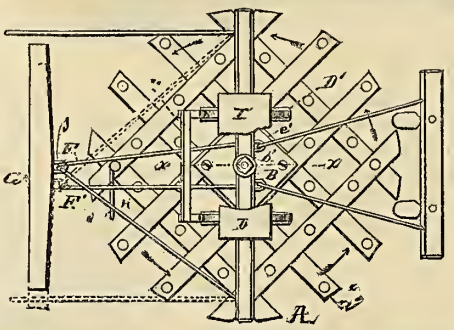
per end to turn on the underside of the plow-beam. The rearmost hanger has a laterally projecting perforated bar upon its upper end, and the plow beam has a lug or bolt which engages the perforations, thus locking the plow in the position desired. By these means the point of the plow may be turned inward or outward at will, changing the width of the furrow when plowing, and bringing the point of the plow nearer to, or farther from the row of plants when cultivating.

Harrow.—E. V. Caldwell, Harpersville, Ind. Feb. 5; No. 292,985. This is a combination harrow, capable of being adjusted to serve the purposes of a harrow, a cultivator, a rake, a pulverizer, a cotton-thinner, etc. The inventor claims the combination of the draft beam, car-



rying two sets of cross-bars, *b*,*b*, upon which are hinged the removable tooth beams *e*,*e*, with the adjusting rod *h*, and the clamp *i*. The teeth of the front beam are forwardly inclined, while those of the rear beam incline backward. The changes required for varying uses, are simple and easily made.

Rotary Harrow.—D. W. Brown, Buckhannon, West Va. Feb. 26; No. 291,113. In the engraving the driver's seat *d*, is partly cut away to expose the pivot of the draft beam, and the connections of the hitch rods *f*,*f*. By varying the adjustment of the guy-rods and hitch-



rods, the harrow may be made to turn in either direction, or to have no revolution. The patent covers the combination of these parts, and the shovel-carrying rear-bar and its connecting rods.

Harrow for Cultivating Listed Corn.—Byron Clark, Greenwood, Neb. Feb. 12; No. 293,227. In this harrow, a cross section of which is shown in the engraving, the beams *a*, *a*, and bars *b*, *b*, to which the teeth *d*, are attached, are secured by hinges to the run-



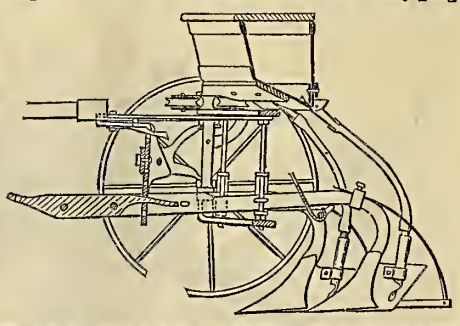
ners *c*, *c*, which are joined sled-wise by the arches *u*. The runners guide the harrow, and protect the corn from clods and earth, while the furrow is being filled by the action of the teeth. The hinged tooth-bars are so connected that the width of the harrow is variable. The inclination of the teeth is also adjustable.

Cultivator.—I. A. Smith, Dexter City, Missouri. Feb. 26; No. 294,091. The object of this invention is to secure the plow standard to the frame in such a way, that when the share strikes a large stone or other obstruction, the upper part of the standard will be automatically disengaged from the beam, and allow the share to swing out of the ground. The displaced share



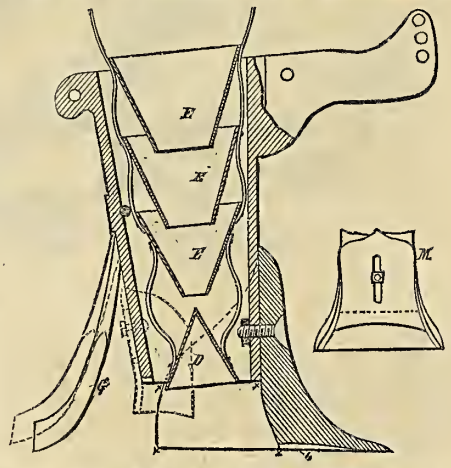
drops into place again when the handle is lifted. To this end the standard is locked in position by a spring-held catch which yields to extra pressure, yet allows the standard to swing into place by its own weight, when the cultivator is lifted from the ground.

Seeding Machine.—A. Shaffer, Cassopolis, Mich. Feb. 26; No. 294,158. The inventor aims to make more certain and uniform the scattering and covering of seed. To this end he attaches to any gang-



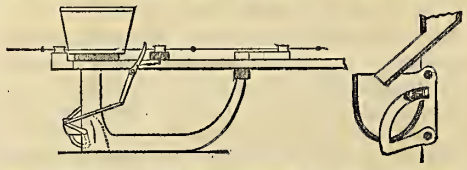
plow, the plows of which are adjustable to cut at a uniform depth, a seeding device which conducts the seed to the furrows, and ensures its regular scattering and covering. An endless carrier running continuously in the same direction, and operated by one of the traction wheels, delivers the seed continuously to the spouts.

Seed Drill.—J. H. Purdy and C. T. Welch, Bellona, N. Y. Feb. 19; No. 293,671. This drill-tooth is thought by the inventors to be an improvement on



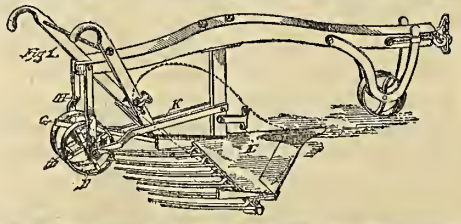
the one patented by them a year ago. They claim as new the series of hollow, inverted, truncated cones *e*, the conical scatterer *d*, suspended as shown in the engraving, the adjustable guard *m*, for preventing too great scattering of the grain during shallow plowing, and the vibrating coverers *g*.

Check-Row Corn-Planter.—E. W. Quincy, Peoria, Ill. Feb. 26; No. 294,369. The inventor's object is threefold,—to arrange the parts of the machine so that the check-row line shall enter the machine at one side of, and clear the team, and pass diagonally across the machine frame, so that the progress of the team shall not be impeded by the check-line; to so arrange the seeding



mechanism that it will be operated in a direct and positive manner by the check-line; and to provide in a pivoted cup-seeder, the means for delivering a regulated quantity of seed at each discharging movement. The engraving shows vertical longitudinal sections of the machine, and the seed-dropper.

Potato Digger.—L. Habeck, Town Lake, Wis. Feb. 5; No. 292,804. The inventor converts a plow into a potato digger, by removing the mould-board, and put-



ting in its place the platform *e*, and its attachments. His patent covers the wheel *i*, with sleeves b^2, braces *h* and *k*, platform *e*, shaking-bar *f*, with its prongs, and the notched rod *g*, in combination with the usual parts of a plow-frame.

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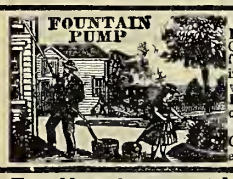
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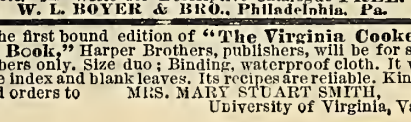
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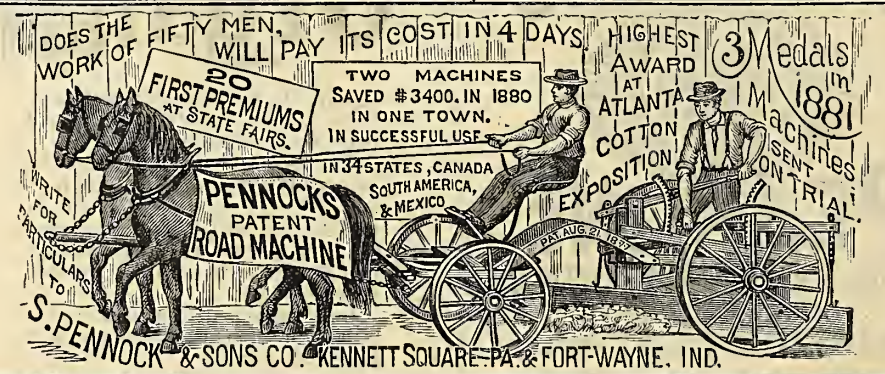
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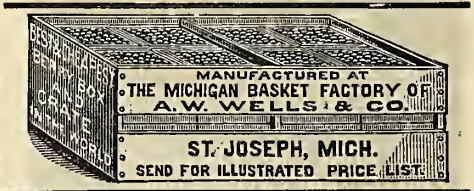
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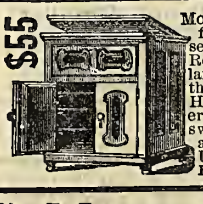
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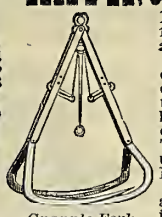


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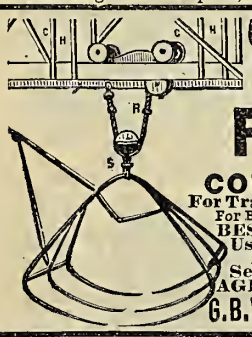
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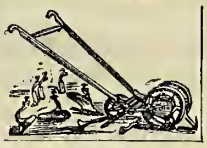
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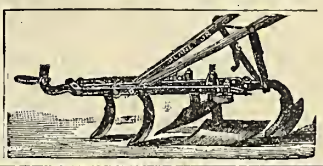


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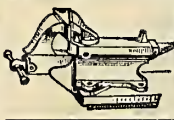
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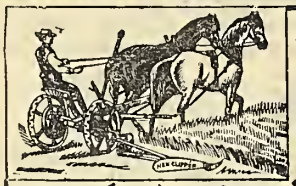


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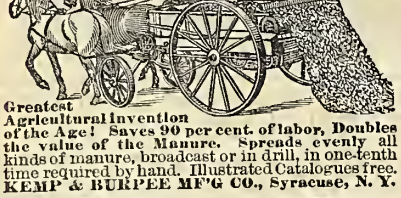
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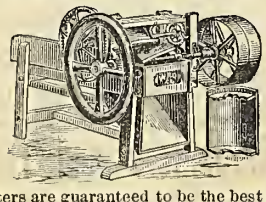
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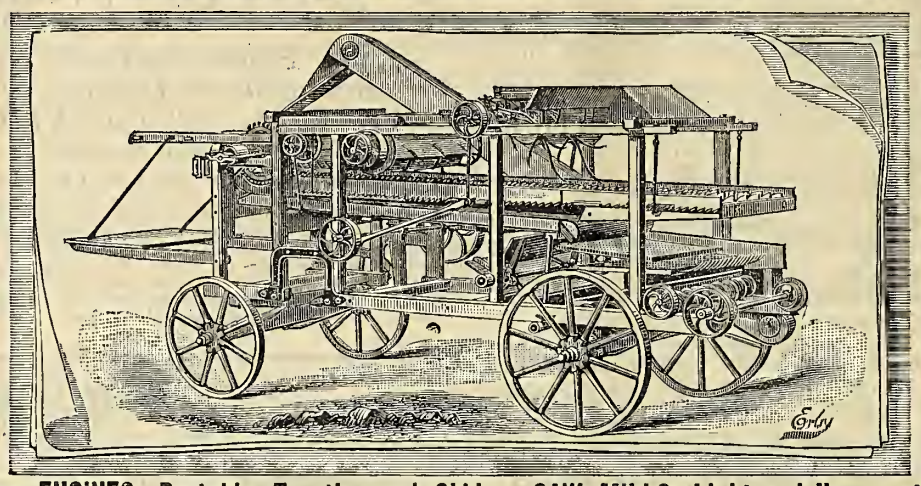


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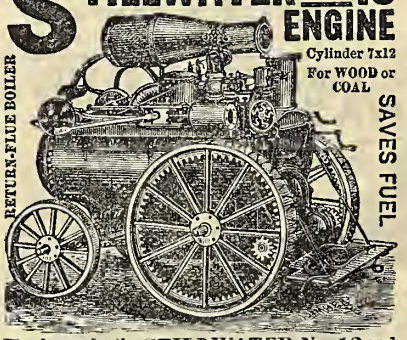
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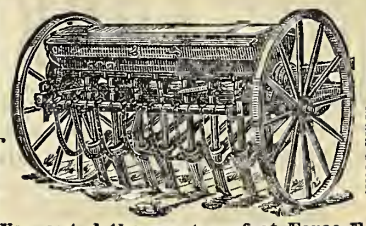
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Fig. 1.



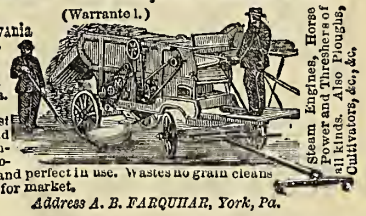
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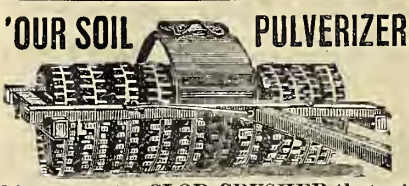
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Milking Tubes Again.

Our attention is kindly called by a subscriber in Wilmington, N. C., to the fact, which gives us no little pain, and which we had entirely forgotten, that several years ago, one of the writers for the *American Agriculturist* had, for a time, such faith in milking tubes, that he recommended their use in this Journal. At that time there was quite a furore about milking in this way. A Scotch farmer brought out the tubes from Scotland, and said that they had been thoroughly tested there. He advertised that he had them in constant use on his own cows. He was known to be an excellent practical farmer, and hundreds of people were deceived. He did indeed use the tubes on one or two of his many cows, and the poor things' udders were swelled and gargeted. The writer experimented with them once, and the very next day one quarter of the cow's udder was inflamed. Such was the well nigh universal result. The writer for the *American Agriculturist* who endorsed the things, soon discontinued their use, but did nothing to repair the injury he had done by their advocacy. It pains us to see that very article, recommending the wretched things, reproduced by a prominent dealer in his catalogue of farm and garden implements. Our readers will please bear in mind, that we now assert the tubes to be dangerous in the extreme, liable to injure the cow permanently, and sure to do so temporarily, unless handled with the utmost care. The reason for this is that, besides the slight local irritation liable to occur from the insertion of the tubes, there is the greatest likelihood of a minute bubble of air passing from the tube into the udder. Air in the udder is a foreign body, and there appears to be no way of getting rid of it, except perhaps by means of an attack of the garget. When this comes, the chances for saving the inflamed quarter are slim. Sometimes it becomes necessary to draw the milk from a teat, when the teat is so tender and sore that it cannot be pressed by the hand in the usual way. In such a case, we have found the best tube we could use to be a crow-quill. The quills of a crow's wing are small, sound and firm, and usually long enough, but in case the one selected seems too short (not less than an inch and a half long), the best plan is to cut it off a little longer, cutting into the shaft of the feather, and then carefully cleaning this out, so as to make a continuation of the tube. The pointed end of the quill is to be inserted in the teat, and this must not be cut off, but softened by moistening, and then opened by a pin or sharpened match. The end of the tube made in this way is somewhat contracted, and is not so likely to let any air into the udder. Still, on removing the quill or tube (if a metal tube be used), the wet finger should be placed upon the end, so as to close it entirely, and then the tube gradually withdrawn.

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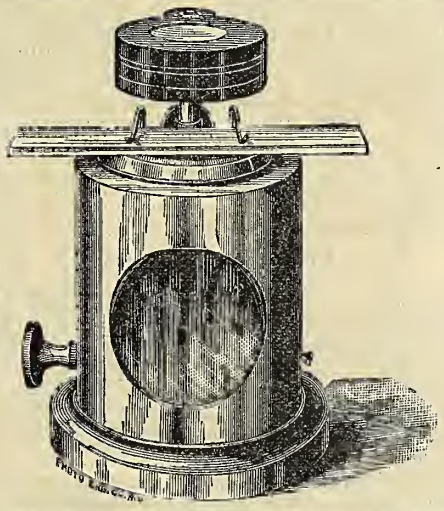
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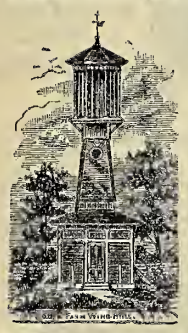
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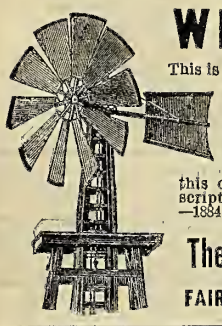
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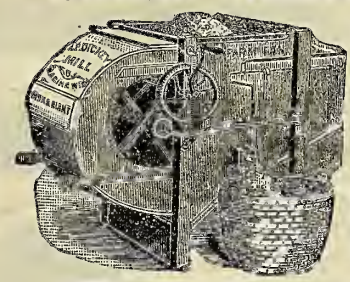
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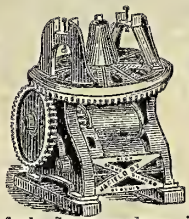


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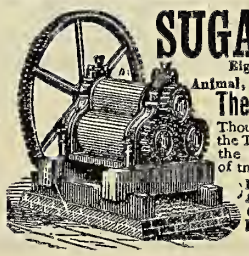
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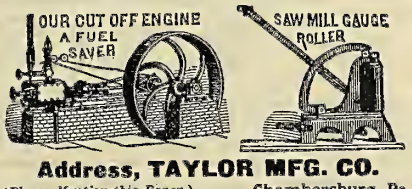
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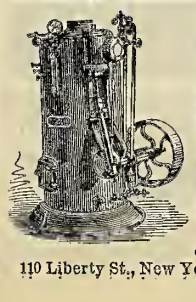
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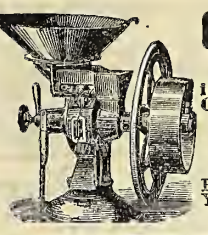
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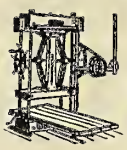
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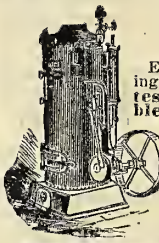
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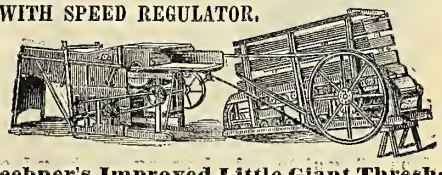
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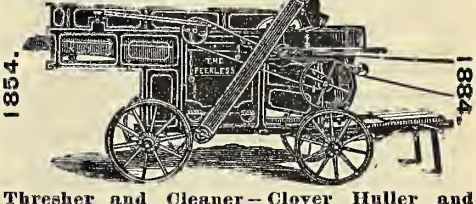
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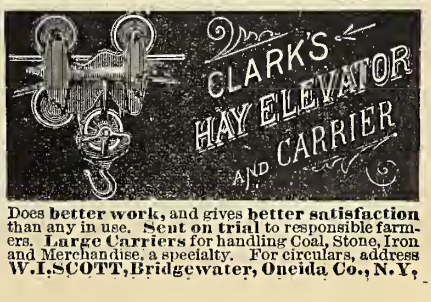
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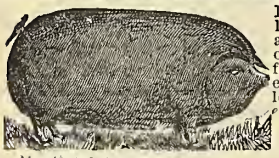
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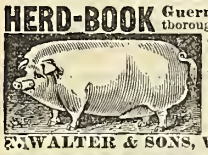
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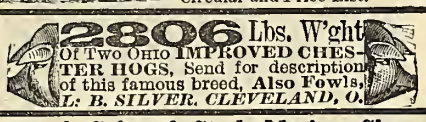


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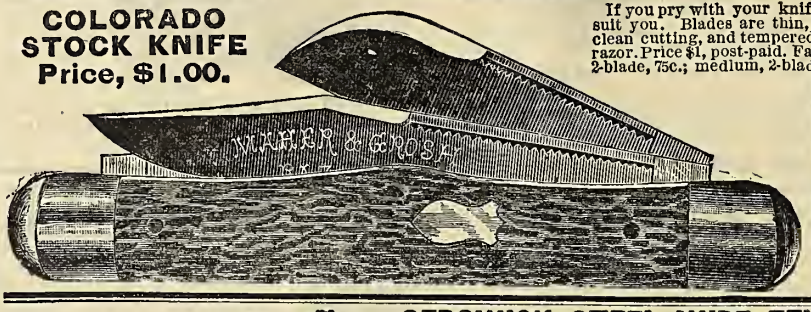


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EGGS FOR HATCHING, from P. Rocks and L. Brahmas. $1.00 per 13. Langshans, $1.50 per 13. Packed in baskets. Miss H. C. Willis, Box 1313, Saratoga Springs, N.Y.

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Send for prices. Send 25 1-cent stamps and get Book of instructions on Bee-Keeping to

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$2000 A Year keeping Bees, **and no stings.** Catalogue and particulars sent free. Send now, don't wait. K. P. KIDDER, BURLINGTON, VT.



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ELEGANT pack of **50** Floral Beauties, Mottoes, Verses, &c., name on, 10c. 10 pks. & Silver Napkin Ring or Ag'ts' Sample Book, $1.00. TODD & Co., Clintonville, Conn.

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We will send you a watch or a chain **BY MAIL OR EXPRESS,** C. O. D., to be examined before paying any money and if not satisfactory, returned at our expense. We manufacture all our watches and save you 30 per cent. Catalogue of 250 styles free. EVERY WATCH WARRANTED. ADDRESS **STANDARD AMERICAN WATCH CO.,** PITTSBURGH, PA.

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Going's Worm Destroyer.—Sure Relief from Worms or Bots.

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These remedies are each put up in tin boxes, and will keep for an indefinite period. They will be sent by mail, free of charge, on receipt of $1 per package. Circulars with full directions enclosed. Address,

PROF. J. A. GOING, P. O. Box 938, New York City.



Furniture and Picture Auctions,

are very frequently swindles. The sale of the effects of "a family breaking up house-keeping," often continues for months. The stranger in the city should avoid all such auctions. If he enters the place, he will find a gang of confederates ready to aid the auctioneer in making it appear that he has bid a high price for their worthless stuff. One who is entrapped in such a place, should at once go, if he has to fight his way out, to the nearest police station and enter his complaint.

Stock-Raising in Texas.

The ranchero who charged a dollar for what he called a "general description" of his spotted ponies, which did not describe anything, now proposes to teach "Stock Raising in Texas." Those who wish to know "terms and contract of just what we will do," can ascertain by sending, as before, one dollar. If young men wish to go to Texas, we advise them not to commit themselves to this man in advance, unless he gives satisfactory reference. Unlike the regular Texan, this recent comer from Ohio is rather sharp after a dollar. Will some one who has been at this ranch give us his experience?

Free Recipes at Rochester.

New York and Brooklyn have heretofore been regarded as the headquarters of those who work the "free recipe" swindle, but now, W. A. Noyes, of Rochester, N. Y., has a formula from "an East India Missionary." He, like all the rest, "felt it his duty to make it known to his suffering fellows." J. Dwyer, Knox Co., Mo., writes us on behalf of a neighbor, who is taking the stuff sent him, and does not improve, asking what we know of the recipe chap. We know just what you know. He advertised to send the recipe free of charge. The recipe, when it came, was of no use, as the stuff was prescribed under names that were unknown to druggists. Noyes knew this, and proposed to furnish the stuff himself. Your neighbor paid five dollars for some kind of roots—no one knows what. There was an intentional fraud at the outset—is it likely that the rest of the transaction will be honest?

Martin Meyer and his Lottery.

It is a long time since we heard of Martin Meyer, Jun., and his "Lottery of the City of Hamburg," (Germany), but he now is annoying our subscribers in Iowa, and other Western States, with his very voluminous circulars. We are told that this lottery was established more than a century ago. "Of little importance in the beginning, it has insensibly grown year after year, to such magnitude that its tickets are spread all over the civilisated world." It must be a comfort to those who draw blanks, to know that their tickets all bear the arms of the "Free City of Hamburg." Meyer sends a "Promissory note," in which he agrees upon the receipt of the money, to send the tickets—which is very kind of him. We believe in the encouragement of domestic manufacturers, and even in such nuisances as lotteries, do not think that the foreign product should have any advantages over the home-made. Under the working of our present laws, the City of Hamburg can carry on the lottery business among us, while the City of New Orleans is shut out of the mails. Still the law is a good one, until a better can be provided.

The Various "Graphs."

There is much that seems dubious among the "Arto-" "Color-" "Pearlo-" and various other "graph" operators, who offer great inducements to persons, especially ladies, to color photo-graphs for them. They each warn people against all the others, and as we have had complaints of all of them, we last month, in order to get at the true history of the matter, asked for the experience of "our lady readers." The very first response came from a gentleman, a clergyman in Rhode Island, who for obvious reasons does not wish his name published. Wishing to do something to help out his meagre salary, he replied to the advertisement of one of the Philadelphia concerns, sending a dollar. He says: "I received circulars giving instructions how to color pictures, but so blind, that no one could hope to succeed. The real object is, not to sell paints and materials, but to get a dollar for a 'Book of Instructions,' and the same is utterly worthless." He adds: "I read it over three or four times, to try to make sense or reason of it, and failing, gave it up. I am quite satisfied that no one could color the pictures so as to be accepted and paid for by the 'Co.'" Next!

"The Greatest Mining Enterprise in the World."

The above is the unassuming title that modestly heads a prospectus before us. It goes on thus: "See what great veins of gold, silver, copper, and lead the Atlantic-Pacific Tunnel is being steadily driven into," and all this in fancy type and displayed lines. What follows is rich reading. This Tunnel, the precise location of which is carefully not given, goes right square through the Rocky Mountains and taps below those veins which miners have been working with so much labor from above. Here there is nothing to do but shovel out the ore—and such ore! Here's richness! The reading of the accounts of the few fortunate persons who have visited this Tunnel is fascinating. When the mine gets fairly at work, the out-put is expected to be one hundred thousand dollars per day! We can only say, that while three thousand five hundred and seventy-eight persons hold shares, only about half are taken. The rest may be purchased of—but these are not advertising columns. Such schemes as this can only affect those fond of speculation, and who can usually stand a loss without being distressed. But how can there be loss with one hundred thousand dollars a day?

Wonderful Fruit Trees for Farmers.

A Subscriber, Washington, Kansas, writes us that tree agents are canvassing his county. They represent, as they say, great nurseries, are on a salary, and therefore bound to go according to instructions, and always do right. They claim the nursery company has many millions in the business, and cannot afford to mislead, etc. These agents have fruit in alcohol, elegantly colored plates, and photographs of wonderful plants. They warrant apple trees to produce fruit in two years, and show how this can be, as follows: "They bud on Russian crab stock two years old, with buds from bearing trees. The crab produces fruit at three years, and if the buds are from bearing trees, they must produce fruit in two years after budding." The agents also state that the peach is budded upon plum stock, and the trees are never effected with borers or "blight," and fruit every year. By cutting back two-thirds of the growth every year, and leaving only buds on the underside, a beautiful drooping top may be formed. This "weeping" condition of the peach is shown by a photograph of a tree grown at the nurseries. These men are taking a great many orders for these wonderful trees at fabulous prices. Thus the sharks prey on the honest farmers in Kansas.

How many times have we cautioned farmers and others not to invest largely in new and remarkable fruit trees, on the strength of smooth talk, and highly colored pictures.

Newspapers with an Annex.

It is coming in fashion for journals and magazines of various kinds to have an attachment or annex of some kind. This at one time took the form of a lottery, but in spite of the fact that it was called a "Distribution," or by some other name, it brought the publishers to grief when they were deprived of the use of the mails. As there are difficulties in the way of running an annex in the form of a lottery, there are indications that it will in future assume the form of

A BANK OR A LOAN OFFICE.

A few months ago, we mentioned the scheme of a Cincinnati publisher, who proposed to set aside a share of its receipts, to form a fund to be distributed in loans among the subscribers to the periodical. The Cincinnati publisher is not alone in having a banking attachment to his publication. A competitor has appeared in the

"INTERIOR DOLLAR MAGAZINE."

Like the prospectus of the other, the circular of this shows by plain figures, that but one thing is needed to make publishing very profitable to the publishers, and allow them to aid their subscribers by making them loans in amounts of one hundred to five hundred dollars—that one thing is a subscription list of some hundreds of thousands of subscribers. This scheme, which is set forth by the "Michigan Loan and Publishing Co.," with its headquarters at Charlotte, Mich., reads so much like that from Cincinnati, and uses illustrations and figures so nearly like those in the other, as to suggest that both had one origin. This more recent affair has the advantage over the older one, as it offers its loans at three per cent interest instead of four. In looking through this prospectus, we have not been able to learn how often the "Interior Dollar Magazine" is published, what is its scope, or who are its writers. Indeed, there is an entire absence of names in the pamphlet, which shows wonderful modesty on the part of those who propose to revolutionize the publishing business.

Mr. Hart's Experience with "Magnetic Appliances."

Mr. S. N. Hart, of Southington, Conn., writes us, that in December last he received from a concern in Boston, Mass., "a belt and insoles. Their circular says: 'Bear in mind, we guarantee a cure, and will cheerfully refund the amount paid when they fail doing all that is claimed after reasonable trial.' On Nov. 13th, they wrote me: 'Yes, we will guarantee a cure, or take pleasure in refunding the money.' On Nov. 19th they wrote me: 'We guarantee to effect a cure, or refund the money.' On Dec. 4th I commenced wearing the belt and insoles, and used them faithfully for ninety-nine days. Neither my wife nor myself were able to see the least advantage from their use, and on March 5th I wrote them to refund the money (ten dollars). March 12th I mailed them another letter, stating that I should send a sight draft. I returned the belt and insoles on March 12th, and can truthfully say that I have had no reason since to think that they ever did me a cent's worth of good. The draft was returned, marked 'refused.'"—We have examined numerous so-called "Magnetic," "Galvanic," and "Electro-magnetic" appliances, and though some make a great display of "hardware," we have never yet seen one that could produce any electric, galvanic, or electro-magnetic curative influence. Any form of electricity to produce any effect, must pass through the diseased portion of the body and act on the nerves. None of those we have seen do anything of the kind. The appliances we have seen consist of

DISKS OF COPPER AND ZINC, OR OTHER METALS,

riveted to Indian rubber cloth. That they have sometimes been useful, we do not doubt, as a strip of rubber cloth applied closely to the skin is often very beneficial in rheumatic and other affections, and probably none the less so, if it has some metal disks attached. Very likely the alleged curative powers claimed for the various "appliances," is due to the cloth and not to the metals attached to it, which may serve as ornaments, and aid the imagination of the patient, as they look "scientific." As to our correspondent's failure to get his money back, what can he expect from one who will propose the impossible—"guarantee to effect a cure"?

We commend Mr. Hart's example to others. He has a charge to make, and makes it boldly, without adding, "please do not use my name." We can understand why, in many cases, persons should not wish to have their names appear, but in instances like the above, where there is a direct failure to comply with an agreement, and there is nothing of a delicate nature involved, correspondents should be willing that their names be given. A warning substantiated by a name and address, has far more influence than when initials only are published. Still, where our correspondents indicate a desire to avoid publicity, their wishes are respected.

Fraud at the Breakfast Table.

To the average American, coffee is as essential to a good breakfast, as is tea to the Englishman. The frauds practised by the makers of ground coffee, are many and well known. These may be readily avoided by the purchase of coffee that is not ground. It has been supposed that one who purchased the raw bean, and roasted and ground it himself, would have pure coffee. While this course avoids one set of adulterations, those which are only possible with ground coffee, it may be but a change of evils. While raw coffee is free from adulteration in the proper sense of the term—the adding of a cheaper article to reduce its cost to the seller, the purchaser may fall upon what is still worse—poisoned raw coffee. It has recently been discovered by the officers of the Board of Health of New York City, that Maracaibo, Rio, and other cheap coffees, are manipulated and colored in their unroasted state, to make them resemble in appearance and color, the "Old Government Java," and that in the process there are used various coloring materials which are of a poisonous nature, and which one would not, even in small quantities, willingly take into his system. Among the coloring matters are some, which, like umber, Venetian red, lamp-black, soapstone, etc., are no more harmful than the same quantity of any other kind of dirt. On the other hand, there are employed compounds of arsenic and lead, which one would not care to take with his coffee in even minute quantities, besides the prussiate of potash and other chemicals not usually regarded as essential to a good breakfast. The cheap coffees are green, and the surface has a dull appearance, while Java coffee has a yellow color, and the surface of the bean is

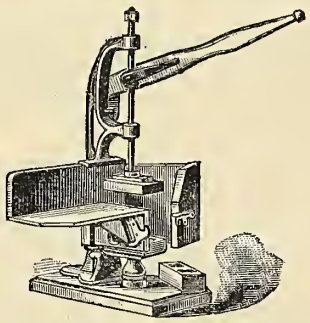
smooth and polished. The articles we have mentioned are used to change the green of cheap coffees to yellow. Sprinkling the coffee with gum-water, adding powdered soapstone, and various coloring materials, and placing it in hot revolving iron cylinders, the beans rub against one another, until they acquire the desired color and polish. The coffee brokers assert that more than half the retail grocers sell cheap coffee that has been colored to imitate Java. There are large establishments for coloring coffee near New York, but they claim that their processes are harmless. They however do admit that that there are some wicked men in the same business in Holland, and it may have been their coffees that were examined by the Board of Health.

HOW TO DETECT COLORED COFFEE.

First-class retail grocers can procure their stock from importers, and they are in no danger of being served with the colored stuff; but it is different with the average dealers all over the country. Soaking the suspected coffee-grains in water, frequently stirring, or shaking them if in a bottle, then carefully drying them and comparing them with a sample not so treated, will show by a difference in color if they have been tampered with. Nearly all the coloring materials are insoluble in water, and if the water in which the sample of coffee has been soaked is allowed to stand in a wine glass, the coloring matter will settle as a fine powder at the bottom.

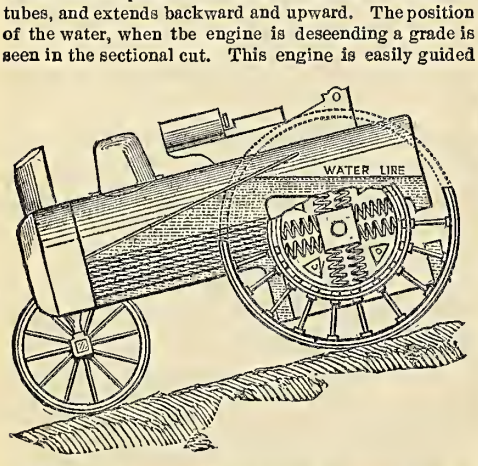
New Farm Implements and Appliances.

Print Butter.—There is an end to oleomargarine in this State, thanks to the Legislature and the Governor, who have enacted a bill forbidding the manufacture of the article. Now our advice to our farmer friends is to make the best butter, put it up in



neat packages with their own particular stamp, plainly impressed on each package or lump. One has but to go about New York, to see what prices butter stamped "Hougbton" or "Echo" Farm commands. It is in the power of nearly all butter manufacturers, to have a brand and a reputation of their own. Perhaps the best butter stamp is the one manufactured by A. H. Reid, of Philadelphia, Penn.

A Boiler for Steep Grades.—One of the greatest objection to traction engines has been the danger of explosion while running up or down steep grades. The "Ajax" Traction Engine, manufactured by A. B. Farquhar, York, Pa., overcomes this difficulty in a manner shown in the engraving below. A plate of sheet iron is placed over the front end of the boiler tubes, and extends backward and upward. The position of the water, when the engine is deseending a grade is seen in the sectional cut. This engine is easily guided



by a patented arrangement, in which the steam does all the hard work.

American Rubber Paint, for several years advertised in our columns, has received general commendation from our readers. Because we have received only commendation and no complaints, we urge our readers to send to the manufacturer, Edmund Blunt, 115 Maiden Lane, New York, for samples and full descriptions.

About Threshing Machines.—There are some trials of agricultural implements that amount to very little, as the apparent superiority of many machines depends more upon the skill of the operator, or the use of horses accustomed to the work, than to any excellence of the machine itself. With a thresher the case is different; here it is the structure of the machine that allows more or less work to be done with the same power. On this account, the victories won at the various trials by the Fearless Thresher, made by Minard Harder, Cobleskill, N. Y., may be accepted as evidence of its superiority, which is further confirmed by the many individuals who have them in use.

The Carpenter's Steel Square and its Uses.—Few mechanics who have used the square all their lives, are aware of how much may be done with it, or to the extent to which it may take the place of more expensive instruments. The author, Fred. T. Hodgson, has brought together in the present work, the various rules and formulas for laying out, by the use of the square, the various angles, bevels, etc., that builders often have need to construct, and to form octagons, polygons, to lay out stairs, and describe circles and ellipses by its aid. The fact that the present new and enlarged edition was called for within two years from the time of the original publication, shows that the work was appreciated by the mechanics of the country, for whose benefit it was intended; they will find the present edition greatly enlarged and even still more valuable. Price, $1.00, post-paid.

Quinby's New Bee-Keeping.—A Complete Guide to Successful Bee Culture, by L. C. ROOT, Apiarian, New York. The Orange Judd Company.

The late A. M. Quinby was long regarded as the highest authority in all matters relating to the apiary. While exceedingly cautious with regard to new methods and appliances, he was progressive, and ready to accept whatever was found to he a real improvement, but a sturdy foe to every form of all pretence, charlatanism, and useless patents. His advice was eagerly sought at various Bee-keeper's Conventions, and his work was for many years the standard authority. So averse was he to all secrecy in the methods of the Apiary, that he called his work, when first published: "The Mysteries of Bee-keeping Explained," though this title was modified in after editions to "Quinby's New Bee-keeping." After the death of Mr. Quinby, the work was re-written by his business associate and son-in-law, Mr. L. C. Root, who embodied the later improvements of Mr. Quinby, as well as his own, and in successive editions, including the present, has kept the work up to the requirements of progressive apiculture. While the work as it now stands is essentially Mr. Root's, he modestly appears as associate author, and gives prominence to the name of one who did so much to bring bee-keeping to its present prosperous condition. The present edition, which contains added matter and new illustrations, is now in press. Price, post-paid, $1.50.

Catalogues Acknowledged.

The catalogues which did not come to hand in time for last month, are given below, and with these we discontinue the publication of the lists until fall. We suggest to our friends that they send their autumn catalogues as soon as they are ready.

NURSERYMEN AND FLORISTS.

J. L. DILLON, Bloomsburg, Pa.—A full collection of green-house plants and small fruits, and makes a specialty of roses.

E. M. FULLER, Bismarck, Dakota.—Green-house and other plants, flower and vegetable seeds, etc. This excellent catalogue shows in a striking manner our wonderful westward progress.

T. S. HUBBARD, Fredonia, N. Y.—Grapes and small fruits. An instructive illustrated catalogue.

IMPLEMENTS, MACHINERY, & MISCELLANEOUS.

BAUGH & SONS, No. 20 South Delaware Ave., Phila., Penn.—Phosphates and other fertilizers, formulas for fertilizers, and the chemicals used in compounding them.

BOOMER & BOSCHERT, Syracuse, N. Y., illustrate the various styles of their powerful press for cider, wine, etc. Also the various accessories used with the press.

BROCKNER & EVANS, No. 422 West St., New York City. Wire netting, and various wire and other appliances for poultry houses and yards, dog kennels, pigeon houses, etc. Also tasteful garden fences, arbors, and other garden structures.

WM. L. BOYER & BRO., Germantown Ave. & Diamond St., Philadelphia.—Union Horse-power Threshers and Cleaners. Farm Grist Mills and other farm machines.

A. B. COHU & Co., No. 197 Water St., New York City.—A very large and finely illustrated catalogue of farm machinery and implements, including those required by planters in tropical countries. The latest improved forms are distinguished by the trade-mark, "A. B. C." Contains everything, from a steam-engine to a garden trowel, besides farm and garden seeds.

J. H. JOHNSTON, Great Western Gun Works, Pittsburgh, Pa.—An illustrated list of rifles, shot-guns, revolvers, and a great variety of accessory implements, fishing tackle, etc.

FRANK L. MOORE, Ponghkeepsie, N. Y.—Illustrates and describes the Nectar Fountain for Poultry.

GEO. L. SQUIER, Buffalo, N. Y.—Describes mills, evaporators, and all other machines for working up sorghum in the "Northern Sugar Cane Manual."

FOREIGN CATALOGUES.

JOSEPH MAYO, Drury, Auckland, New Zealand. A descriptive fruit list. A very large share of the apples are of our own varieties, while the pears are nearly all of French origin.

1867 1884

Hatch & Foote, Bankers. 12 Wall St. New York.

Buy and Sell all issues of U. S. Bonds; execute orders in Stocks and Bonds for Cash, and on a Margin; Interest allowed on Deposits. Desirable Investment Securities on hand, a list of which we furnish on application. Personal attention given to correspondence which we invite.

SILKS FOR CRAZY PATCHWORK in 50c. or $1.00 packages. Elegant varieties. Our 20 cent package of best Embroidery Silk, assorted colors, free with every $1.00 order. YALE SILK WORKS, New Haven, Ct.

50 Large, New, Embossed border Chromo Cards, all gold, silver, motto and hand, name on, 10c., 13 pks. $1. Agts' latest samples, 10 cts. L. JONES & CO., Nassau, N. Y.

50 New Style Chromos, EVERY CARD EMBOSSED. Moss Rose, Bird Mottoes, Hand Mottoes, Golden Beauties, &c., name on, 10c. Ætna Ptg. Co., Northford, Ct.

PRESSES, TYPE, CHROMO CARDS, Scrap Pictures, &c. Send for price lists. E. C. DUNN & CO., 2106 Orkney St., Philadelphia, Pa.

40 (1884) CHROMO CARDS, no 2 alike, with name, 10c., 13 pks., $1. GEO. I. REED & CO., Nassau, N. Y.

SOLID GOLD — THIS SOLID GOLD BAND RING, warranted Solid Gold or money refunded, in an elegant velvet-lined casket, a case of samples of our Beautiful Cards, and our new Illustrated Premium List with agt's terms, &c., all sent post-paid for 45c., 2 for $1.25. Offer made to secure new agents for 1884. We will print your name in new type on 50 Beauties, 50 all new Chromos, 10c, 11 packs for $1.00, and the above ring FREE to sender of club. New Sample Book 25c. post-paid. CAPITOL CARD CO., HARTFORD, CONN.

50 Embossed Chromo Cards, bouquets of flowers, hand holding bouquet, Ancient and Modern Views, &c., (every card embossed) something just out only 10 cents. As an inducement for you to get up a club we will send you a Handsome Four Bladed Pearl Handle Knife free with a $1.00 order. HUB CARD CO., BOSTON, MASS.

60 Lovely Cards New style fruit or pocket knife, free with a 50c. order. Choice Chromos, your name in pretty type, post-paid, 10c. 25 fine gold edge cards, 10c. Hidden name cards, 12 for 20c. 500 other styles. Big pay to agents. Send 6c. for terms and samples to canvass with. HOLLY CARD WORKS, Meriden, Conn.

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Author of "American Cattle," Editor of "American Shorthorn Herd-Book."

For the young man of rural tastes, but without a training at the plow handles, who asks for a general guide and instructor that shall be to agriculture what the map of the world is to geography, it is the best manual in print. For the working farmer, who in summer mornings and by the winter fireside would refresh his convictions, and reassure his knowledge by old definitions and well considered summaries, it is the most convenient hand-book.—*N.Y. Tribune.*

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A PRACTICAL MANUAL

FOR THE

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By F. D. COBURN.

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Including a Chapter Specially Written for it by Sir John Bennet Lawes, of Rothamsted, England.

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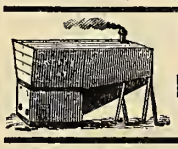


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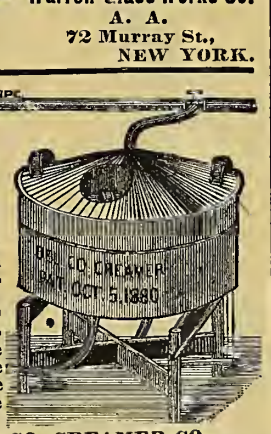
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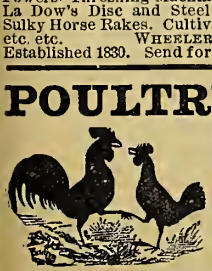
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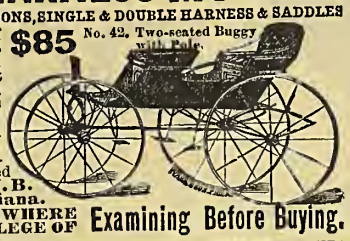
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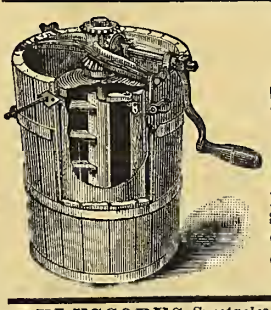


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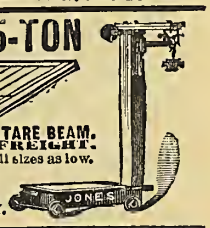
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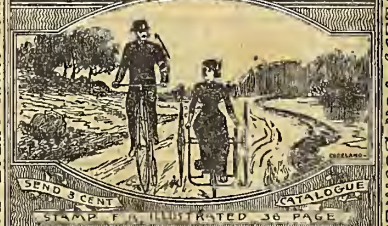
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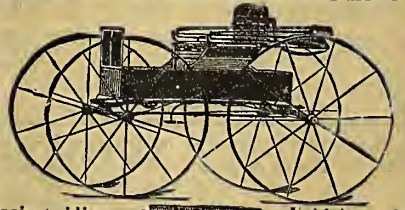
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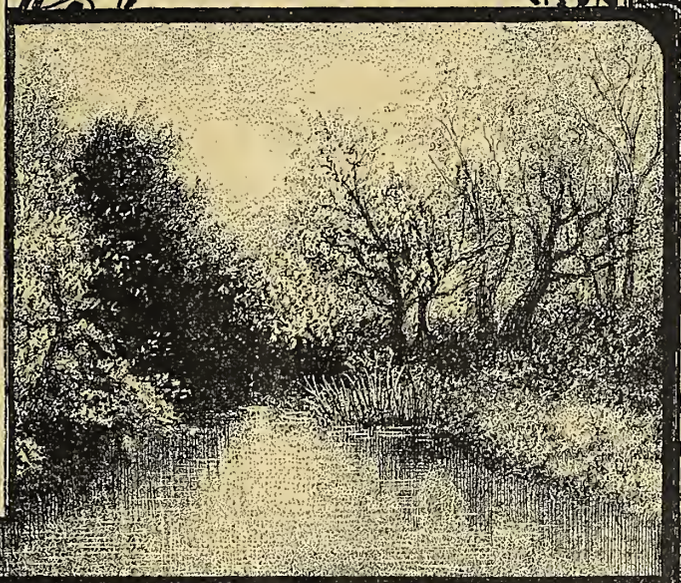
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AMERICAN

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VOLUME XLIII





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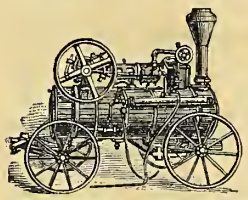
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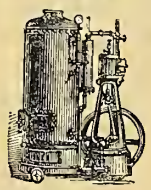
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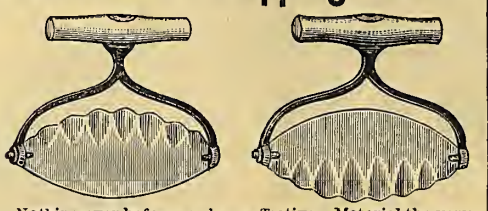
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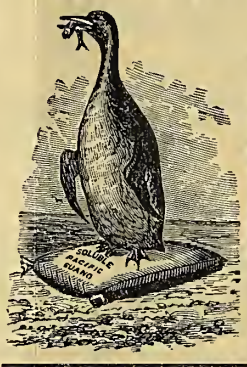
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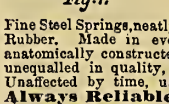


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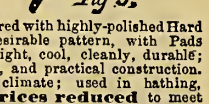


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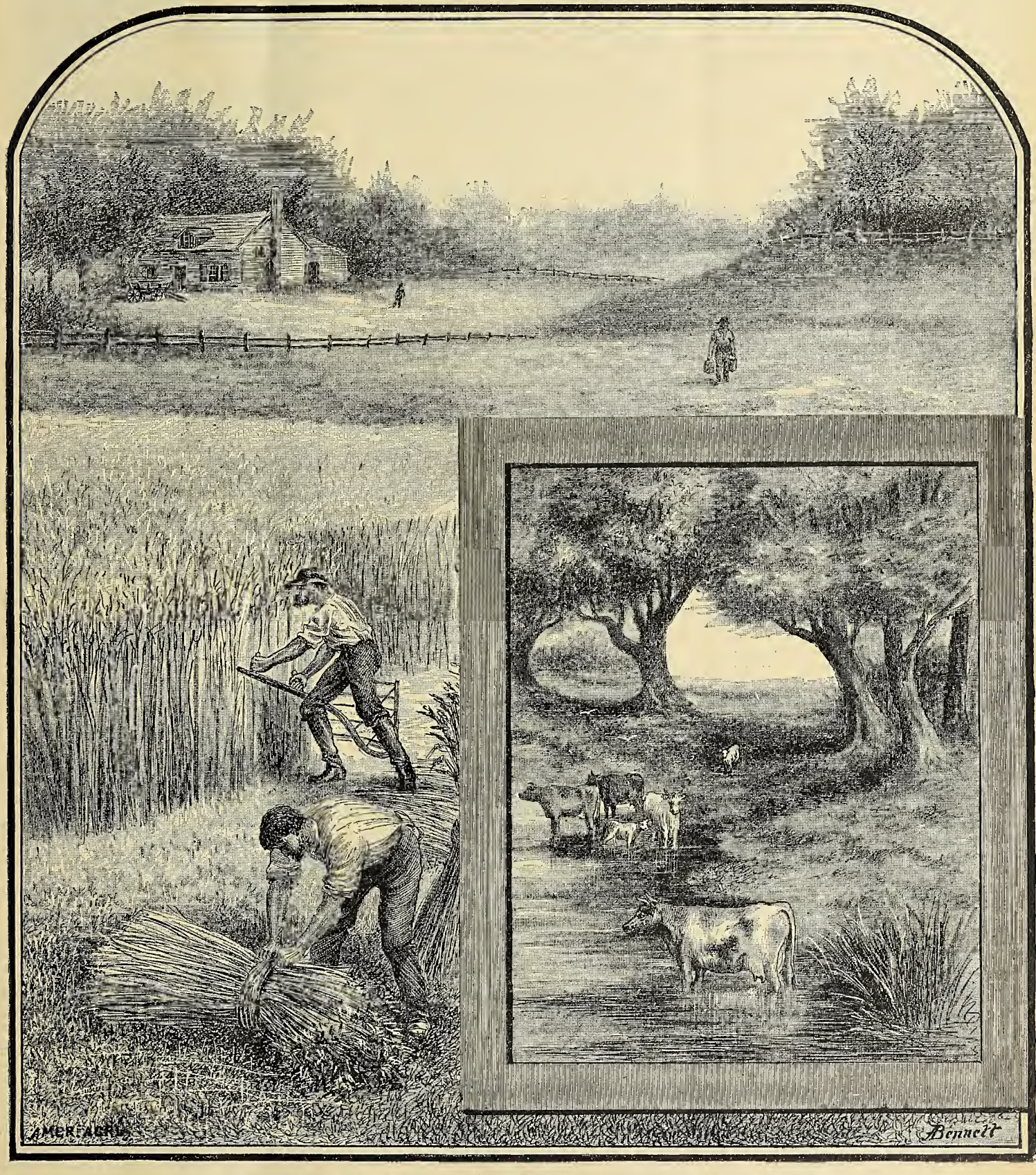
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Her Harvests still the ripening summer yields.—BRYANT.

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Contents of this Number.

Animal Ailments ... 288
Apple-Worm—The Codling-Moth ... 279
Aprons for Horses ... *Illustrated* .. 284
Barn, An $800 ... 7 *Illustrations* .. 293
Bee Notes for July ... *Illustrated* .. 281
Bees, New Varieties of Honey ... 281
Beets, Early and Late ... 284
Blackberry, The, in Summer ... 292
Blackberries, New—Early Harvest ... *Illustrated* .. 282
Blight in Different Varieties of Pears ... 281
Boston Brown Bread ... 289

BOYS' AND GIRLS' COLUMNS:
An Unexpected Journey ... *Illustrated* .. 301
The Doctor's Talks ... 3 *Illustrations* .. 302
Many a Slip 'twixt the Claw and the Lip ... *Ill*.. 303
Can You Talk with the Pencil? ... 303

Cabbages as a Farm Crop ... 279
Chat with Readers ... 289
Cherry, Stocks for the ... 289
Chicken Raising ... 294
Cow, The, in Mid-summer ... 281
Cuttings of Unripe Wood ... 280
Eggs, How to Keep ... 289
Exhibition, The New Orleans ... 289
Farmers, Among the ... 294
Farmer's Liability for Acts of His Beasts ... 284
Farming in France ... 8 *Illustrations*. 290-291
Farm Work Notes ... 278
Flail, A Threshing ... *Illustrated* .. 283
Gates, Self-Opening ... 289
Gooseberries—New Variety ... *Illustrated* .. 282
Grapevine in Summer ... 280
Grapes Here and There—The Ives ... 297
Greenhouse and Window Plants ... 287
Hams, Keeping through the Summer ... 295
Her harvests still the ripening summer yields. *Illus*.. 277
Holder, A Saw ... *Illustrated* .. 294
Horse, The Improved English Shire ... *Illustrated* .. 285
Horses, Fine Action and Good Gait in ... 2 *Ills*.. 287
Hungarian Grass for Hay or Green Fodder ... 293

HOUSEHOLD.
Awnings for Country Dwellings ... 2 *Illustrations* .. 299
Shawl Straps ... *Illustrated* .. 299
Wash-Stand Screen ... *Illustrated* .. 299
Wedding Presents—Beginning House-keeping ... 299
Little Household Conveniences ... 299
A Combination Closet ... *Illustrated* .. 300
The Housekeeper who is a Philosopher ... 300
Convenient Coal Box ... *Illustrated* .. 300
Waste from Well and Cistern Pump ... 300
The Eyes ... 300

Inventions, Our Record of Agricultural ... 14 *Ills*.. 304
July Days ... 278
Kitchen and Market Garden ... 279
Lawn and Flower Garden ... 279
Lemons, California, and Limes ... 282
Live-Forever as a Weed ... 283
Measurer, A Land ... *Illustrated* .. 284
Notes from the Pines ... 2 *Illustrations* 298
Onions, Harvesting and Storing ... 298
Orchard and Fruit Garden ... 279
Patents and Patent Laws ... 283
Phosphates, The North Carolina ... 285
Plants, Growing House, in Moss ... 298
Potato, Why, Experiments Differ ... 285
Prizes, Award of ... 279
Roosts, Summer Poultry ... 294
Seeds, Raising ... 287
Sheep Raising in the Northwest ... 292
Silk-worm, Feeding the ... 287
Spot, Bright, in Dingy Street ... 288
Strawberries for Next Summer ... 298
Structures, Various Garden ... 4 *Illustrations* .. 296
Stumps, Pulling ... 294
Sumach, Preparing for Market ... 295
Trees, Burning Down ... 2 *Illustrations* .. 280
Trees, Isolated with Decorative Surroundings .. *Ill*... 297
Trees, Propagation by Layering ... 2 *Illustrations* .. 295
Trees, Shade, on the Farm ... 292
Trough, A Reversible Watering ... *Illustrated* .. 294
Turnip Crop, The ... 294
Uintjies, The Water ... *Illustrated* .. 297
Vacancies, Fill up the ... 287
Walks and Talks on the Farm ... 286
Well-House and Bath-Room ... *Illustrated* .. 280
West, The Need of the ... 288
Wheat, When and How to Harvest ... 280
Wire-Worms, True and False ... *Illustrated* ... 292
Wood, The Importance of a Supply of ... 296
Work-Shop, The Farm ... 4 *Illustrations* .. 283

For Humbug exposures, book reviews, business announcements, and other matters of special interest, see the last pages of this number of the Am. Agriculturist.

JULY DAYS.

The full ripe grain is bending
In waves of golden light;
The new-mown hay is sending
Its sweets upon the night;
The breeze is softly sighing,
To cool the parched flowers;
The rain, to see them dying,
Weeps forth its gentle showers.

THOMAS J. OUSELEY.

After having made a world-wide reputation as the editor of "The Genesee Farmer," Mr. Joseph Harris, for twelve years, without intermission, "Walked and Talked" with the subscribers of the *American Agriculturist*, thereby instructing and entertaining a vast army of readers. After an interval of eight years, Mr. Harris again resumes editorial relations with this journal. Many of his old readers have passed away; but probably there are fully one hundred thousand to warmly greet him on his return. A life-long student of agriculture, educated at Rothamsted, with Lawes & Gilbert, he resumes his labors here, with the additional rich experience and study of these eight years. Dr. George Thurber, who for nearly a quarter of a century has stood at the head of our editorial force, Dr. Byron D. Halsted, who for six years has ably seconded Dr. Thurber, Andrew S. Fuller, and all the other able associate writers, who have carried the *American Agriculturist* to its present success, welcome Mr. Harris back to his former field of labor.

Writers for the July American Agriculturist.

Dr. George Thurber, N. J.	R. G. Newton, Dak.
Joseph Harris, N. Y.	Rev. William Clift, Conn.
Dr. B. D. Halsted, N. J.	M. J. G. Hammack, Ill.
Col. M. C. Weld, N. J.	J. M. Stahl, Mo.
Andrew S. Fuller, N. J.	Alfred Trumble, N. Y.
Prof. S. R. Thompson, Neb.	B. W. Jones, Ga.
Dr. D. D. Slade, Mass.	W. D. Boynton, Wis.
Henry A. Haigh, Mich.	I. E. Charles, Ind.
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Theodore Goodrich, Ill.	Nellie Burns, N. H.
M. E. Bamford, Cal.	Amelia H. Botsford, N. Y.
L. C. Root, N. Y.	Agnes (Carr) Sage, N. Y.
John Bartlett, Ont.	David W. Judd, N. Y.

As in the past, so in the future, we shall make the illustrations a great feature of the *American Agriculturist*, and thereby, as for twenty years, aim to both instruct and please hundreds of thousands of homes. Will all contributors, as far as may be, accompany their articles with plain sketches and designs, which so much aid the reader in understanding the subjects treated.

The *American Agriculturist's* Microscopes, manufactured exclusively for us, and obtained through no other source, are proving a grand success (see another page). At this period of the year they are valuable for the examination of flowers and plants, and the various injurious insects that prey upon the grains, fruits, and flowers. Every farmer, every gardener, everybody should have one of these beautiful new microscopes. Elsewhere read the "free terms" on which it can be procured.

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See page 312 for matters of importance to readers of the American Agriculturist.



Advance.
Keep a record.
Tar sheep's noses.
Take your holiday.
Work for success.
Weed out poor hens.
Drink little ice-water.
Observe rigid cleanliness.
Insure the farm buildings.
Hot weather favors vermin.
A pig loves a run in the clover.
Late cabbages require rich soil.
Buckwheat mellows cloddy lands.
Give a frequent change of pasture.
Unclean stables breed bad disorders.
A hundred-day pig may be very profitable.
Pure drinking water is of the first value.
Muzzle the horse when the corn gets large.
Harvest the wheat in the "doughy" state.
Young stock need a separate feeding-place.
Timber cut in mid-summer is most durable.
Improve the live stock through better males.
Protect the work horses from flies with sheets.
Ripe, woody, late cut grass does not make good hay.
Sheep need shade and shelter, as well as food and water.
Top-dress newly mown meadows with fine manure.
Cultivating the corn prepares the soil for future crops.
A clover sod turned under is a heavy coat of manure.
Poor layers and bad mothers should go to the block.
Salt the stock once a week; not necessarily on Sunday.
Dry earth makes good bedding for cattle in mid-summer.
Cut millet or Hungarian grass before the seed gets ripe.
Give work horses frequent and small drinks of cool, pure water.
Flat turnips sown now, will yield excellent food for sheep in late autumn.
Sow buckwheat for second crop, or to fill out where another has failed.
Place a wet cloth in the crown of the straw hat; it may prevent sun-stroke.
Superphosphate is a most acceptable fertilizer for ruta bagas sown this month.
Manure begins to draw interest as soon as spread, payable at the next harvest.
Select a portion of the corn-field for seed, and give it extra attention. Breed up the corn.
Repeated sowings of fodder-corn make a continuous supply of green feed at the close of the growing season.
The root crop has superseded the summer fallow in the rotation, and the use of the land is no longer lost for a whole year.
Horses as well as boys enjoy an evening bath. They are profited by it if lasting only a few minutes, and they are subsequently rubbed dry.

Orchard and Fruit Garden.

During the present month and the next, the orchardist and gardener finds work less pressing than at any other time, and he is wise if he takes a vacation. A week at the sea-side, or on the shore of an inland lake or river, will do wonders for recruiting one for the work of the autumn months. Go among the fruit growers and gardeners, see what others are doing, and how they do it. Such visits are useful to both giver and receiver.....Insects demand attention every month. The Apple-worm is noted elsewhere. The Apple-borer and the Peach-borer must be looked for; if their sawdust is found, or there is a depression in the bark of young trees, cut for and probe out the worm. The Currant and Gooseberry bushes, if attacked by the worm, must have powdered White Hellebore, a tablespoonful thoroughly stirred in a pailful of water, and freely showered to wet the leaves..... The beetles and large caterpillars upon the grape-vines may be picked off by hand.....If a Strawberry plant is seen to wilt, search at its root for the White Grub, and kill it before it can go to another plant.....The shiny, green Slug upon the leaves of pear and cherry trees, may be destroyed by dusting them with air-slaked lime, or wood ashes..... Blight is often destructive to the pear. All that can be done is to remove the blighted portion, whether a small branch or the whole tree, and burn it.....Budding may be done as soon as buds are mature, and the stocks are ready. The cherry is usually the first, followed by the plum and pear. Summer Layer the Grape.—Shoots of this season that are sufficiently hardened, may be bent down and have a portion buried in the soil; roots will soon form upon it.....Wind Falls.—If pigs are not pastured in the orchard, the fallen fruit should be picked up and fed to them.

Kitchen and Market Garden.

Success in keeping down weeds, depends upon attacking them while they are small. A sharp rake is most effective if applied early. The use of the cultivator must be supplemented by hand weeding in the rows.....Asparagus tops make a dense shade, and keep down small weeds; if any large ones appear, pull them.....Sowing seeds for Succession Crops, and setting out plants for late ones, will be the chief work this month. Sow Early Beets (see p. 284). Of Bush Beans, the Refugee is preferred for late planting. Sweet Corn, of early quick growing varieties, may be planted for table and for drying.....Sage, Thyme and other sweet herbs, may be set out, also late Cabbages, Cauliflower, etc.....Celery is to be set out from the seed bed. If ground can be used from which a heavily manured early crop has been removed, all the better; otherwise the soil must be well manured. Mark out the rows, three, or better, four feet apart, setting the plants six inches apart in the rows, taking care to set them no deeper than they stood before. Press the soil gently and firmly to the roots with the feet, and if it be dry, give an abundant watering. Afterwards keep the celery clear of weeds..... Ruta Bagas and other turnips, may be sown as indicated elsewhere.....When vines of Lima Beans extend beyond the tops of the poles, nip off their ends. Tomato vines must be kept tied up to the trellis; remove all badly shaped fruit; hand-pick and kill the great green worm.....Egg-plants.—Keep the potato bug from them, and place straw under the fruit to keep it from the ground. ...Sweet Potato vines should not be allowed to take root at the joints; move them at each hoeing.

Flower Garden and Lawn.

When the grass is growing rapidly, it may be mown frequently; on the other hand, if a drouth checks the growth, the grass may be injured by using the mower too often. Large weeds should not be allowed to get established; take up docks, plantains, etc., as soon as discovered. An old thin chisel fixed to a handle, makes an excellent "spud" to aid in uprooting large weeds. Beds planted in Ribbon Style, need care, and if plants in the different lines run into one another, they must be cut away to keep the outline distinct.....Perennial Plants, except in rare cases where seeds are wanted, should have the flower clusters cut away as soon as they begin to fade.....Dahlias, Gladioluses, Tuberoses, etc., will need stakes; let them be inconspicuous, and placed out of sight.....Annuals of all kinds will keep in bloom much longer if not allowed to ripen their seeds.

Award of Prizes.

The following persons were the successful competitors for the prizes offered in February for essays upon Feeding and Care of Farm Animals: First prize ($50), to "A Western Farmer"—Mr. Fred. Grundy, Morrisonville, Ill. Second prize ($40), to "Stock-breeder"—George Ashbridge, West Whiteland, Pa. Third prize ($30), to "Zero"—F. A. Deekens, Federalsburg, Md. We will favor our readers with a portion, at least, of the first prize essay in the next issue of the *American Agriculturist*. We remind all writers that they have until September 1st to compete for the prizes for short juvenile stories, offered in June last.

Cabbages as a Farm Crop.

JOSEPH HARRIS.

Last year millions of cabbages were imported into this country from Europe; and such was the case in 1882. They are used largely for Saurkraut. In foggy weather cabbages are liable to heat or mould on the steamers, and the expense of getting them here is very great. The price in the New York Market ranged from ten to fifteen cents per head. Prices in the inland cities and villages were still higher. A farmer can well afford to raise cabbages for three cents a head. And the crop has this great advantage—if it cannot be sold it may be fed out on the farm to cows, sheep, or pigs.

For late autumn or winter use, cabbages can be planted from the last of June, until the middle of August. The large varieties, such as the Large Late Drumhead, Premium Flat Dutch, and Short-stem Drumhead, should be planted as early as convenient in July. If it is necessary to plant late in the season, select the earlier varieties. For this purpose there is nothing better than the Early Winningstadt.

As a farm crop, cabbages should be planted in rows, three feet apart, or sufficiently wide apart to admit the use of a horse-hoe, or cultivator. Low swampy land that is too wet for corn, can often be planted to cabbages with great advantage in July. If the land is smooth and clean, the plants may be set in rows two and a half feet apart, but if rough, and not in fine condition, make the spaces wider.

It is very little work to set out an acre of cabbages. Mark out the land as you would for planting corn, and instead of dropping corn, set out a cabbage plant. The better way is to mark the land both ways, and let a boy drop the plants where the rows cross. If the land is in good order, a man and boy should set out at least an acre a day. If you have not cabbage plants of your own, they can be purchased at very low prices—say from one dollar to two dollars per thousand, according to the quantity ordered. You should get more plants than you need, in order to have enough to replace any that may fail to grow. If you plant three feet apart each way, there should be four thousand eight hundred and forty plants on an acre. If three feet by two and a half feet, five thousand eight hundred and nine per acre; if three feet by two feet, seven thousand two hundred and sixty plants per acre; if two and a half feet by two and a half feet, which will answer for Winningstadt cabbages, there will be six thousand nine hundred and seventy plants per acre. When the plants get fairly started, nothing more is required, except to use the cultivator freely between the rows, and to dress out the weeds around the plants with a hoe. Thorough cultivation is the essential point.

If you are afraid of the green worm, set out five acres instead of one acre. There will be about as many worms on the small patch as on the large one.

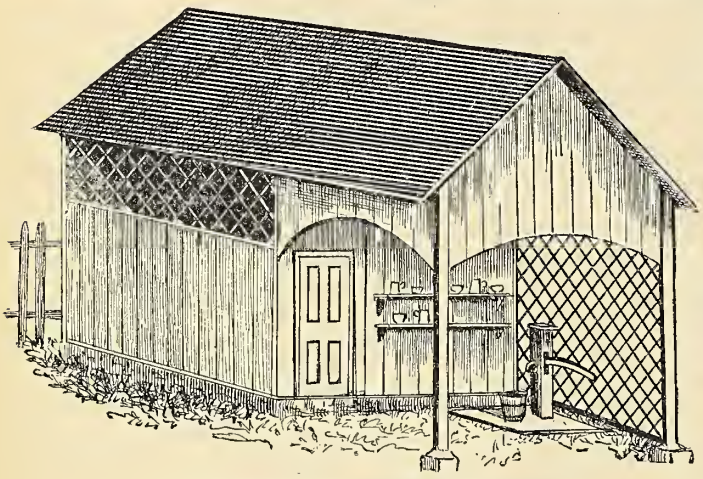
The Apple-Worm—The Codling-Moth.

From their letters of inquiry, it is evident that some of our correspondents think that the Apple-worm and the Codling-moth are different insects. It will simplify matters if they understand that the "worm" is the grub or larval state of the moth. This pest has been so general, and has so rapidly increased, that a few years ago it seemed to threaten to make orchard culture unprofitable in many localities. Recently, however, remedies have been devised which should encourage the fruit-grower to hope that he may successfully combat this, his most destructive enemy, and if their application can be made general, promise a better future for the orchardist. The life history of the insect may be briefly stated thus: In spring, about the time the fruit has "set," a little gray moth leaves the chrysalis in which it has been dormant all winter. As this moth flies only at night, it is rarely noticed, making its way to the young fruit, where it deposits a single egg in the calyx or blossom end of each.

The egg hatches in a few days, and the little worm eats its way into the young apple, and attains its full growth in about two weeks. It then leaves the apple by a hole it makes in the side and descends the tree. Finding a crevice, or a sheltering scale of bark, the worm conceals itself there, and spins a cocoon. In two or three weeks, the moths emerge from these cocoons, and are ready to go through the same performance again, laying their eggs and stocking the apples with a second supply of worms, which complete their growth, descend the tree, find a hiding place as before, and make their cocoons. Instead of leaving their cocoons in two or three weeks, as did the first brood, the moths do not issue from them until the following spring, in proper time to lay their eggs upon the recently set fruit. Of the fruit containing this second brood, a large share of it falls to the ground; the worms, when full grown, leave the fallen fruit, and if they find no shelter at hand, affording a hiding place, crawl back to the tree, ascend its trunk, and finding a secure place, make their cocoons. The methods of destroying the insect depend upon a knowledge of the facts here briefly stated. A most important addition recently made to the other modes of warfare, depends upon the fact that the apple, when young, is erect, with its calyx or blossom end upward. As the fruit grows and becomes heavy, it turns downward. Acting upon this fact, and the other, that the young worms enter the apple from the blossom-end, some Western orchardists have applied Paris Green, which poisons the worm, as it attempts to eat its way to the interior of the fruit. The tree is so abundantly showered with water in which the poison has been stirred, that a little will fall into each upturned blossom-end of the young apples. Very little Paris Green is required, a tablespoonful thoroughly distributed through (for it does not dissolve), a barrel of water is sufficient. The barrel is placed upon a wagon of some kind, and its contents showered into the trees by means of a force pump. The least particle of the poison kills the worm. So little is applied that no harm could result from the use of the poison, did not the rains completely remove all traces of it. The season for poisoning is past, but there are other measures that may yet be taken. If the trunks of the trees were not scraped in early spring, let it be done at once; then apply a bandage of some kind around the trunk of each tree. Woollen fabric is best, old carpet answers well, but any rags will answer. The bands may be about six inches wide, long enough to go around the tree and lap slightly and be fastened by a single tack at the lapped portion, being careful to not drive it in so far that it cannot be readily removed. The worms will seek the shelter of these bands, and spin their cocoons. The bands are removed every ten days, and the worms or their cocoons crushed. They may be killed by hand or by passing the cloth through a clothes-wringer. The branches should be shaken, to cause wormy apples to fall, and these, and all those which drop spontaneously, should be picked up and fed to pigs, or the worms they contain otherwise destroyed.

A Southern Well-House and Bath-Room.

Few southern people in moderate circumstances would dispense with their bath-room. Instead of adjoining the sleeping room, as at the North, the bath-room is usually in a separate building, located near a spring or well. A very desirable bath-house and well-room combined, is shown in the engraving. The apartment containing the pump may be completely surrounded with lattice work, and when practicable, quick-growing vines should be trained over the lattice, giving the whole a cool, refreshing appearance. Instead of windows to



A WELL-HOUSE AND BATH-ROOM COMBINED.

light the bath-room, there may be lattice-work from beneath the eaves, down to five and a half feet from the ground. At the South the water is seldom warmed, and is usually pumped directly into the bath tub. The outlet pipe should discharge the waste water several rods from the well. The building shown in the engraving is ten by fifteen feet, a little more than half being used for the bath-room.

The Grapevine in Summer.

There is no time, from the first pushing of the shoots, until the leaves are ready to fall, but destructive insects of some kind attack the grapevine. Fortunately, the later insects are mainly large caterpillars or beetles, and one who is frequently among his vines, can destroy them before they can do much injury. The great pest in the hot months of July and August is mildew, and the vine grower should be constantly on the look out for it. Some varieties of the grape are much more subject to its attacks than others, and these vines should be watched for the first appearance of the scourge. Whitish or grayish spots or blotches on the under surface of the leaves, are mildew, and the remedy, a thorough dusting with sulphur, should be applied at once. Sulphur bellows are now kept in the seed and implement stores. Before using, the sulphur should be run through a sieve, in order to remove all lumps. Too large a quantity should not be placed in the bellows at one time, and in using it, the bellows should be so worked as to deliver a cloud of fine dust. Choose a still, hot day, and endeavor to have the under surface of the leaves as thoroughly dusted as the upper. A second dusting of sulphur may be made in about a week after the first, and it should be applied all through the season if mildew appears. Not only in early spring, but later in the season, strong, vigorous shoots will appear upon the main stem of the vine. These start at no particular place, and grow with great rapidity. Novices in grape culture are puzzled as to the proper treatment of these shoots. A shoot from a regular bud, if not needed, is broken away, and the same should be done with these chance shoots. Unless a cane is needed just where such a shoot appears, break it off. The laterals puzzle many, but their treatment is very simple. As a shoot grows, there will be found two buds at the axil of each leaf—the part where the leaf joins the stem. Later, one of these buds will start into growth—this shoot is called a lateral. We wish to keep one bud perfectly dormant, for next year's fruiting. If the shoot from the bud that has started were pulled out, the other one would start into growth, and there would be no fruit from it next year. The proper treatment of the laterals is, to pinch them back to one leaf, as often as they push.

Cuttings of Unripe Wood.

The experience of amateur gardeners in raising plants from cuttings, is, as a rule, confined to the currant and the grape. Cuttings from the ripened wood of currants of all kinds, take root very readily. The cuttings made from the prunings of most, but not all, varieties of the grape, will take root and form new plants. Amateur gardeners who would like to propagate their ornamental shrubs, find if they take cuttings, as they would of the currant and grape, from the ripe wood, they rarely succeed. Shrubs that refuse to be propagated from pieces of the mature stems, will usually succeed if cuttings are made of green, or just hardening stems. Cuttings of this kind have leaves, from which evaporation goes on rapidly; if planted in the open air, they will be very apt to fail. To succeed, it is necessary to provide a moist atmosphere, or as the old gardeners would say, "keep them close." A hand-light or bell-glass, placed over such cuttings, will provide a moist atmosphere, and insure success. But we write for those who are not supposed to have all garden conveniences at hand, and such, in the absence of hand-lights and bell-glasses, can provide a useful substitute from an ordinary box. Knock off both top and bottom, leaving a mere frame, and tack over it, in place of the top, a piece of cotton cloth. If the cuttings are planted in sandy soil, and covered with a frame of this kind, undue evaporation will be prevented, and a large share will take root. The amateur may try for his shrubs what we have frequently described for soft-wooded plants, as the "saucer method." A deep plate or saucer is filled with clean, sharp sand, the cuttings, an inch or two long, are set close together in this, and the sand is kept constantly wet, as wet as mud. Here the abundant water supplies the loss by evaporation from the leaves, and the dish and its contents may be exposed to full sunlight. Cuttings for this method should be very young and tender. If the sand is kept constantly wet, a surprising number of cuttings will take root. As soon as roots appear, the young plants should be potted in good soil. This method of striking cuttings affords to amateurs an interesting field for experiment. Some shrubs may be propagated by placing the lower portions of cuttings of their stems in a bottle of water and exposing them to the light. This is a very common method with the Oleander, but cuttings of other shrubs may be tried in the same way. As soon as roots are formed on the cuttings, they should be potted in somewhat sandy soil.

When and How to Harvest Wheat.

Mr. W. H. Burtis, The Glades, Ga., and others, ask us for information on the proper time to cut wheat. It is the experience of the best wheat growers in our own and other countries, that a superior quality of grain is obtained by harvesting the crop when the berry is in the soft or "doughy" state; that is, when the grain may be readily crushed between the thumb and finger. It is claimed that more bushels per acre, and a greater amount of flour of a better quality per bushel is thus obtained. Starch and gluten are the most valuable constituents of wheat, and the quantity of these is diminished by over ripening, while the per cent of woody fibre is increased. Every farmer can readily make a practical test of this question, by cutting a part of his wheat earlier than the rest, threshing, weighing, and grinding the grain separately. The method of harvesting the grain has much to do with its quality. One of the greatest sources of loss arises from the careless and hurried manner of shocking the bundles. If the shock becomes thoroughly wet, as it is sure to be in "catching" weather, if not properly made and protected, the grain begins to grow, and only an inferior bread can be made from it. There are several methods of arranging bundles in the shock; they may be set in pairs, forming a row of ten or twenty, or in round shocks. The long stooks expose a broad surface to the winds, and may be blown down, when the well-set round shock would stand the storm. The latter form also more readily admits of "capping." A secure small shock may be made of three pairs of bundles set closely and firmly, with two more bundles upon each side of the double row. The heads of the bundles are brought up together, and a cap-sheaf placed over all. This cap is an ordinary bundle, with the hand placed six or eight inches from the butt, and the top bent out into the shape of a funnel. A larger round stook consists of four pairs of bundles, with three sheaves on each side, making fourteen, upon which two cap-sheaves are placed, each made as above described, with one side of the funnel left open where the two sheaves join on the shocks. A boy may aid in bringing the sheaves into piles, but it is no economy to employ him to shock them. It is a common practice to cut and bind until night-fall, and afterwards set up the sheaves in the quickest way possible. Of all harvest work, the shocking of grain should be done with the greatest care; otherwise a hard storm may convert the poorly made shocks into piles of decaying straw and growing and nearly useless grain.

Burning Down Trees.

In the Southern States, especially Florida, the pine trees are usually burned down when clearing the land. This practice could often be advantageously followed at the North. Figure 1 shows the common plan. A hole about twenty inches deep and two and a half feet square is dug on the leaning side of the tree, so that when it



Fig. 1.

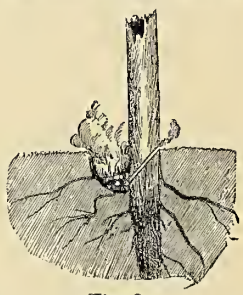
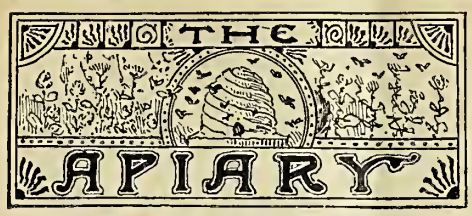


Fig. 2.

falls the opposite roots if any remain unburned will be pulled out. The lower part of the trunk thus exposed is struck a few times with the axe, and left a short time for the pitch to exude. A fire is kindled in the hole as shown in figure 1. Trees ten inches in diameter are burned off and the roots burned out below, the plow line in twenty to thirty hours. A more expeditious way is given in figure 2. A hole is dug as before described, also removing eight or ten inches of the earth from the opposite side. With an inch and a half or two inch auger, a hole is bored through the tree at an angle of forty-five degrees, as shown above. For this purpose a ship auger is used, or a long shank may be welded to a common one. The hole thus bored acts as a chimney, and soon not only the side of tree is on fire, but the chimney part as well. The tree is burned down in less than one-third of the time required by the old method. A strong man can bore nearly fifty of these holes in a day. Stumps are removed in the same manner, and if dry, in a considerably shorter time than trees.



Bee Notes for July.

W. Z. HUTCHINSON.

Making Honey Vinegar.—The "cappings" shaved off in the preparation of honey for extracting, are always allowed to drain. But even when thoroughly drained, considerable honey still adheres to them, and it is an excellent plan to have a keg or a barrel of water in which to wash them, and to allow the water to ferment and become vinegar. Water which has been used to rinse out any utensil that has contained honey, can be thrown into the barrel. The scum that arises upon the surface of the sweetened water should be skimmed off.

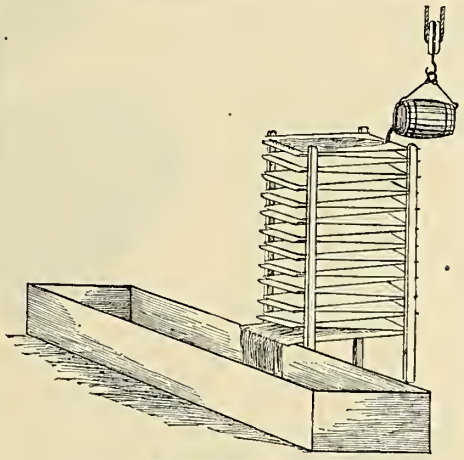
Making Beeswax.—The "cappings" which accumulate in the extraction of honey, and all odds and ends of comb, should be carefully saved, but, in warm weather it is well to render them into wax as soon as possible; otherwise they are liable to become infested with the bee moth's larvæ. What is called a Swiss wax extractor, is a convenient utensil for rendering wax. It is simply a "basket" of perforated zinc, inside a "steamer" which is set over a kettle of boiling water. The refuse comb is placed in the basket, and the steam rises and melts the wax, which is caught by a false bottom in the steamer, and runs out through a spout in the side. When there is not much wax to render, the cappings of combs can be put into a tin sieve, the sieve covered, and then set over a pan of boiling water. The steam will melt the wax, which will run down and rest upon the water in the pan. The pan and its contents can be set aside until cold, when the wax will be found formed into a cake. Another method is to put the combs into a cloth sack, and the latter into a wash-boiler—the sack being held at the bottom of the boiler by means of a stick, the upper end of which presses against another stick, lying across the top of the boiler, and tied to its handles. When the wax is melted, the boiler is set aside until the wax is cool enough to be removed. Wax can be cleaned from utensils, by using a cloth saturated with kerosene oil.

Fuel for Smokers.—Many substances have been recommended as fuel for smokers, but nothing has given the writer more satisfaction, than what is sometimes called "punk," a peculiar kind of dry rot. That from the maple tree is best.

Ants.—To circumvent the little ants, that sometimes prove themselves such nuisances by getting into honey, place it upon a table or platform, the supports of which rest in dishes partly filled with kerosene oil. A muslin cover with a rubber cord in a hem around its edge, will exclude dust and insects from a vessel holding honey.

A Bee Sting Remedy.—Veteran bee-keepers rarely trouble themselves with bee sting remedies, but amateurs, and those in whom the flesh swells when stung near the eyes, often wish for something that will reduce the swelling and pain. The best remedy known to the writer is a tincture of Plantain, made by pouring alcohol over the freshly gathered leaves, and allowing it to remain until it turns black, when it is poured off and bottled. If this remedy is applied immediately after the wound is given, the swelling and pain will be scarcely perceptible. If the person is severely stung, a few drops of the tincture can be taken internally.

Ripening Honey.—When first gathered, honey is generally quite thin and watery, so that it can readily be shaken from the combs, but the heat of the hive, aided by the manipulations of the bees, soon reduces it to the proper consistency, when the bees seal it over. It has been asserted that larger quantities of honey can be obtained, if it is extracted when first gathered, but, when taken in this "green" condition, it must be ripened by artificial means. Otherwise it ferments. It will rarely do so, if nearly ready to seal when extracted, and if allowed to stand in open vessels, the excess of moisture will in time evaporate. Mr. Pettit, a Canadian, has the following method of ripening honey. During a bountiful yield, he extracts as often as once in three days, and when a barrel is full of honey, it is raised by means of ropes and pulleys, to the upper part of the honey room. The faucet to the barrel is slightly opened, and a small stream of honey allowed to trickle upon the upper edge of a sheet of tin, having a slight inclination. From the lower edge of the tin, the honey drips upon the upper edge of another sheet, placed under the first, but inclined in the opposite direction. From the lower edge of the second sheet of tin, the honey drips upon the upper edge of a third sheet, from the third to the fourth, and in this manner it continues to flow from sheet to sheet, until it passes over about thirty sheets, when it runs into a large vat. To prevent the honey from running off at the sides of the sheets, their edges are slightly turned up. Mr. Pettit has never found it necessary to run the honey through the evaporator more than once.



HONEY DRYING APPARATUS.

There is some difference of opinion, however, as to whether honey thus artificially ripened, has the fine, aromatic flavor, and smooth, sweet, oily taste, of that thoroughly ripened in the hives. The writer's experience in this matter would lead him to decide the question in the negative.

New Varieties of Honey Bees.

L. C. ROOT, AUTHOR OF "NEW BEE-KEEPING."

Through the efforts of Messrs. D. A. Jones, Frank Benton, and others, who have spent much time and money in this direction, several varieties of bees, new to this country, have been introduced, and their comparative value to some extent tested.

The Cyprians have some marked characteristics. They have been quite thoroughly tested, but do not grow in favor with the majority. They are far too irritable to be agreeable to handle. Some consider them superior honey-gatherers. I have given them quite a thorough trial, and the only point I could find in their favor, was a tendency to breed late in the fall, which is desirable as affording a good force of young bees when going into winter quarters. I have not tested the Syrians. Mr. Benton pronounces them among the very best. The Carniolans are said to possess some very desirable qualities, and a cross between them and the Italians has a good reputation. Much has been said of the Holy Land or Palestine bees, but my own experience does not corroborate all that is claimed for them.

Mr. Julius Hoffman received an importation of Caucasian bees in 1880. He has experimented quite extensively with them, and is of the opinion they are superior in many respects. In fact, I have never heard more desirable points claimed for any one variety than Mr. Hoffman claims for these. He is one of our most practical bee-keepers, and his conclusions should be received with confidence. Much credit is due those who have been so persevering in securing to us these new varieties. The ultimate results must be of great good, as the future crossing of these strains will no doubt give us one with a combination of very superior traits.

The Cow in Midsummer.

On farms where the dairy is an important part of the husbandry, provision is made by sowing soiling crops, to supplement the diminished pasturage in midsummer. Those who keep only the "family cow," or at most two or three cows, find the flow of milk to decrease, and often without any green crop provided for keeping it up. The territory of those who keep but a single cow, is often restricted to a small pasture and a vegetable garden. The garden should be made to supplement the pasture, and this may be done to some extent by securing for the cow much from the garden that usually goes to waste. Every one who has a garden, tries to have an abundance of green peas. After the vines have yielded their last profitable picking, instead of allowing them to remain upon the ground until that is wanted for another crop, feed the vines to the cow while they are still green and succulent. So with sweet corn. When the last ear is plucked from a stalk or a hill, do not wait until the whole patch or row can be cleared, but pull up the stalks that have been deprived of ears, a few at a time, and feed them while in their best condition. The outer leaves of early cabbages, and the leaves of beets, carrots, and turnips, carefully saved, will make an important item in the succulent food for the cow. If there is a space in the garden, from which an early crop has been removed, and it is not needed for a late garden crop, it should be growing something for the cow. Sweet-corn may be sown thickly in rows for "fodder corn," and afford welcome feed. It is well to have an abundance of cabbage plants of a large late variety, and set them out wherever there is room, and far beyond the needs of the family. An occasional cabbage next winter will be a treat to the cow. Experiments made a dozen years ago with some twenty varieties of the Southern Cow Pea showed, incidentally, that, even at the North, if they did not ripen their seeds, they would give an enormous weight of herbage upon a small area. This pea is highly valued for animals at the South, both fresh and as hay, and seems to be worth trying in Northern localities, as a soiling plant. Where there is room, even a few square yards, it may be well to sow either Hungarian grass, or one of the plants called Millet, for late summer feed for the cow. If the soil is rich, an abundant crop may be cut. Besides summer feed in the garden, if there is room there or elsewhere, it is well to think of Jerusalem Artichokes as a winter treat. It is late now for a large crop, but with the tops, which are highly relished, the tubers, being crisp, succulent and highly nutritious, will be most acceptable as an addition to dry fodder. When one once fairly undertakes to produce the greatest possible amount of cow food from a small area of land, he will be surprised at the results that he obtains, especially those seen in the pail.

Blight in Different Varieties of Pears.

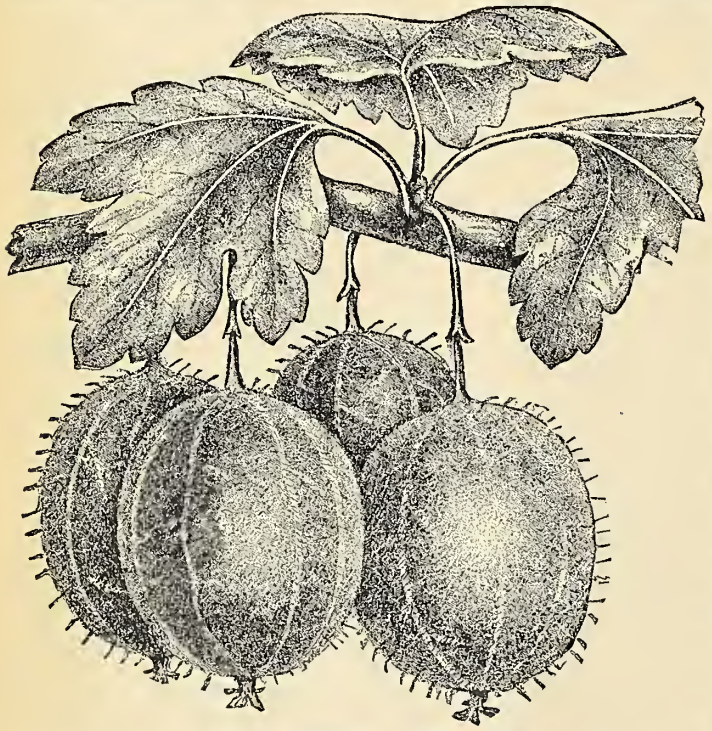
In an orchard of five hundred pear trees, three hundred Louise Bonne de Jersey, and two hundred Bartletts, planted in 1876, the blight had killed, up to last year, forty Bartletts, and about as many of the Louise Bonne. This season four per cent of the latter, and six per cent of Bartletts have been reset. In another orchard of an equal number of trees set in 1882, quite a number were reset last spring, and this year the loss by blight and a few by accident, was of Bartletts twelve per cent, Osband's Summer eight per cent, and of Duchess de Angouleme less than two per cent. Thus it will be seen that the Bartlett is most subject to blight of the four varieties. Indeed the loss among three hundred and fifty Bartletts was nearly as great as in six hundred and fifty trees of the other three kinds.

The Bartlett is a deservedly popular variety with buyers of fruit, and by them is considered a

standard of excellence. Though it commands a ready sale, and is an abundant and regular bearer, yet it is peculiarly subject to blight. Can we afford to plant a pear so universally short lived? A mortality of twelve per cent annually, is a very serious loss, amounting to an entire renewal of an orchard every ninth year. Under the most favorable circumstances, with these figures, not more than four crops could be expected, even if the trees lived the full term of nine years. Would this amount of fruit be a sufficient remuneration for the cost of the tree, its planting and cultivation for the other five years? A much larger number of Bartletts are planted than of any other variety; is the practice to be recommended? A superabundance of one variety will make a glut in any market. Would it not be better to partly substitute Duchess that is subject to a loss of only two per cent? This would be of assistance in time of a glut, and materially decrease death by blight. THEODORE GOODRICH.

Gooseberries.—New Variety.

The English gooseberries, noted for their great size and fine quality, are rarely seen in our markets. They are so subject to mildew that only a few fanciers, mainly Englishmen, endeavor to cultivate them, and by a constant fight with the mildew, manage to secure dearly earned small crops of their favorite fruit. The varieties grown for market are American seedlings. The first of these, the "Houghton," was many years ago raised at Lynn, Mass., and in spite of its small size, its freedom from mildew, and the abundance of its fruit, caused it to be widely cultivated. Numerous seedlings were raised from the "Houghton;" several with larger fruit than the original, are on that account preferable to it. The best of these originated with Charles Downing, and is known by his name. Probably nine-tenths of all the gooseberries produced for market are gathered and sold while green, and are used for cooking. When ripe they are not large enough or of sufficiently good quality to be a satisfactory desert fruit. A good gooseberry is so desirable, it is not surprising that fruit-growers should test the new varieties which are produced abroad, in the hope of finding one that can be grown in our climate. A new foreign variety, the "Industry," has been offered this year by a nursery, the proprietors of which are well known pomologists, and when they say that they think "it is destined to revolutionize gooseberry culture in this country," we are sure that they have good grounds for the belief. The bush is described as a vigorous grower, and immense yielder, and as showing no signs of mildew. The size of the fruit is shown in the engraving; the color is dark red, skin somewhat hairy, and the fruit is said to be of pleasant, rich flavor. We shall look upon the future of this berry with interest, and hope it may prove to be the fruit so long desired by the lovers of gooseberries, in all portions of the United States.



A NEW GOOSEBERRY—"INDUSTRY."

California Lemons and Limes.

Among the institutions peculiar to Southern California are the Citrus Fairs, held annually in different cities. At these fairs, in addition to the many varieties of oranges with which the halls are crowded, there are exhibited a great quantity of lemons and limes. At a recent Citrus Fair, held near San Diego, twenty-six varieties of lemons were shown, with sixteen of limes. Many of the lemon-clusters suspended from the ceiling were very fine, as were also the pyramids and trays of this fruit exhibited on the tables. The "Eureka" lemon took the prize at this Fair for the best budded fruit.—About one hundred and forty thousand lemon trees are now growing in the orchards of California. Around San Francisco Bay the lemon is often planted in the open air, where it sometimes grows to be seven or eight feet high, and bear fruit; but the southern portion of the State is better adapted to it. In Los Angeles County, alone, the number of lemon trees, according to the assessment roll of 1883, was fifty thousand, five hundred and sixty-five. At Riverside, in San Bernadino County, there are twenty thousand trees, and the crop of 1881-82 amounted to three thousand eight hundred boxes of lemons, and five thousand of limes. Lemons and limes are also cultivated in Santa Clara, Stanislaus, Fresno, San Luis Obispo, Ventura, and San Diego counties. The Sicily and Malaga lemons are the varieties most cultivated, although the Chinese is very prolific. This lemon is very hardy, but never becomes a tree of more than ten feet high. Lemons do not require more than a third as much water as oranges, and for this reason the two are rarely planted together. Many farmers surround their lemon orchards with hedges of limes as windbreaks. As the limes seldom grow to be more than bushes of from four to about ten feet high, they answer the purpose of a hedge.

In many parts of Southern California limes are so common, that every year great quantities of the fruit drop to the ground and are allowed to decay. Among those who have regular lime plantations, from one to two hundred bushes occupy an acre. There are two crops yearly for the limes, one in January and the other in June. Lemons are generally more profitable than oranges. When in good bearing, a lemon tree will yield about fifteen hundred lemons per season. The cost of gathering the fruit and shipping it from the southern part of California to San Francisco, is about five dollars per thousand. About the same amount must be paid for water per acre. The general estimate is, that the ordinary yearly profit of an acre of lemon trees in good bearing amounts to one thousand dollars. The chief objection to the lemon as a fruit tree is its slowness in coming into good bearing. For the first ten or a dozen years, the tree does not bear heavily, but after that the profit is sure. One fifteen-year-old tree in Los Angeles, a few years ago bore two thousand lemons, which sold in San Francisco for sixty dollars, and at the recent Citrus Fair, one of the exhibitors stated, that he had sold this season from one tree, within three months, fourteen hundred lemons, and still the tree was well loaded with fine fruit.



A NEW BLACKBERRY—"EARLY HARVEST."

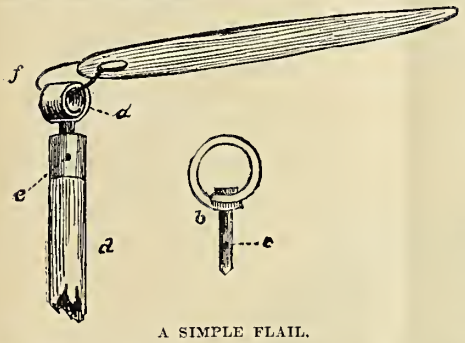
The lemon is as easily propagated from seed, cuttings, or suckers, as the orange. About eighty trees are planted on an acre. A lemon orchard does not present so beautiful an appearance as one of orange trees, for the foliage is less luxuriant and the branches are irregular. The lemon blooms here about the first of March or April, the first crop being then on the tree. The second crop comes in the summer, and the third in the autumn.

New Blackberries.—Early Harvest.

There appears to be "a boom" among blackberries, more new varieties having come forward during the past two years than during any corresponding period. Cultivators appear to be working in the direction of earliness, and to "Wilson's Early" and "Early Cluster," they add the "Early Harvest." Is great earliness desirable in a blackberry? It is of importance to the fruit-grower to have the fruits follow one another in regular succession, and blackberries are not wanted until the raspberry crop is out of the way. It is claimed for the "Early Harvest" that it is the earliest of blackberries, being ten days in advance of the "Early Wilson." It strikes us that while extreme earliness is not desirable, there are directions in which the blackberry may still be improved. As to quality, if there is a berry superior to a well ripened "Kittatinny," we have not seen it. What is now especially needed is, a blackberry that will be ripe when it is black, and which, after being picked will retain its brilliant jet-black color, without becoming dull and brownish after a few hours' exposure. It is said that the "Early Harvest" originated in Illinois, and has been cultivated to some extent for the Chicago and other markets. The few who have tested it at the East, report in similar terms with the western growers, viz: that it is a very hardy and prolific variety; the fruit ships well, and it is thus far the earliest of all the blackberries. As the "Early Harvest" has been largely planted for market at the East, we shall soon learn its value as a market fruit there.

A Threshing Flail.

The engraving shows a simple flail, which works easily, and wears much longer than the wooden connection usually employed. The loop, *a*, is made of a piece of thick, hard leather—a piece of an old harness tug, or a strip of sole leather is good. The leather is cut about an inch and a quarter wide, and formed into a loop with the ends lapping as shown at *b*. A hole is made through the lapped ends, to receive a round-headed bolt. This bolt has a pin-hole, *c*, at its lower end. The bolt is now driven into the handle *d*, and the pin *e* inserted, which holds the bolt in place. A piece of tough leather



A SIMPLE FLAIL.

thong, *f*, is put through the leather loop *a*, to unite the two parts of the flail. This loop *a* swivels on the bolt *b*. This is firmly fastened in the handle.

Live-Forever as a Weed.

Several of our troublesome weeds are escapes from cultivation, as may be conspicuously seen in the Wild Parsnips and Wild Carrots. These are degenerate useful plants, and the Toad-flax (*Linaria vulgare*), is a quite too common example of an ornamental plant that has gone astray. This showy plant was cultivated by our grand parents, as "Butter and Eggs." A Mr. Ranstead had it in his garden near Philadelphia, and the plant is known in Pennsylvania as "Ranstead Weed." Live-forever is another ornamental plant, that has escaped and become a weed. Mr. "J. E. B.," Little Falls, N. Y., sends a specimen of a weed known as Live-forever, and wishes to know about the plant, and how to get rid of it. Live-forever, as a weed, is of comparatively recent occurrence. It is a species of Stone-crop (or *Sedum*). Its numerous stems form a clump, which, when in flower, is quite handsome. We can remember when it was grown in gardens for its beauty and as a curiosity. A well established clump has numerous fleshy stems a foot or more high. The ovate leaves are very thick, and each stem is terminated in mid-summer by a large, flat cluster of light-purple flowers. The stems are very tenacious of life. A full-grown shoot, fastened by a pin against a window sash, instead of wilting will go on and perfect its flower cluster and bloom from the nutriment stored up in the thick stem. While this peculiarity of the plant made it an interesting one, its strong hold upon life, and the fact that every fragment of the stem in contact with the soil, will strike root and form a new plant, make it very formidable as a weed. In many places where it has gained a foot-hold it shows every disposition to stay. Its reproductive powers are so marked that breaking up the old plants by plowing or digging only increases the trouble, as every stem, or fragment of one, will form a new clump. European works upon agriculture do not mention Live-forever as a specially troublesome weed, yet in this country it has in many places established itself, and its eradication is already a serious problem. The subject was brought to the attention of our readers several years ago. One correspondent then reported success with smothering the plants, placing upon them small heaps of manure, or covering them with bog-hay, or whatever would exclude light and air. A few clumps can be thus treated, but where the plant, as in some cases, has taken possession of the ground, smothering is not easily practised. With this, as with all other weeds, "resist the beginning" is the true method. The farmer should know all plants by sight. Those not known to be of use may be regarded as enemies. If upon the first appearance of a stranger, he is questioned as to his objects, much trouble may be saved. Let those who have successfully exterminated "Live-forever" report their methods of dealing with this weed. The pest is increasing.

Patents, and Patent Laws.

That the farmer who, finding a design for a gate in the *American Agriculturist*, or other journal, has built one from it, should feel aggrieved when some one subsequently calls upon him and demands a royalty, is not at all surprising. Another farmer has read that the patent on the driven-well is not valid, puts down the tubes for such a well, and soon finds himself obliged to pay a royalty, or to stand a suit at law. He of course feels that he has been wronged, and looks upon all patents as frauds. These gates of different kinds, and the driven well, are but examples. There is scarcely any other device used by the farmer, even if of his own invention, for which he may not be called upon to respond—honestly it may be, but often dishonestly—for an infringement of somebody's patent. Such cases have occurred so frequently, especially in the Western States, that farmers—and we do not wonder at it—have become exasperated. They have now, through their granges, clubs, and other associations, made themselves heard by their members of Congress, in their demands for relief. As a consequence, bills have been introduced, looking to the abolishing of the patent office. Hasty legislation is undesirable at all times, and would be especially unfortunate in the present case. While general attention is called to the matter, the present is a good time to revise our patent laws, and endeavor to remove their objectionable features. Our present system, liable as it is to abuse, is vastly better than none at all. In agriculture alone, the patented inventions have been of a benefit that can not be computed. The present mowers, reapers, headers, threshers and a host of other farm machines, would never have been in use, could not the inventors have been able to patent them. One must be short-sighted, who can not see that patents have done much to advance our agriculture. Our patent system is open to abuse, and no doubt has been made use of by swindlers. That this is the case, is not so much the fault of the patent laws as of the farmers themselves. If the farmers of every township, or school district, had an association, the members of which would make common cause against all frauds who claim to have patents on the commonest farm devices, and instead of compromising these claims, could contest them, this would usually be the last of them. When our Patent Rules are revised, and the present seems a good time for doing it, we would suggest that much of the trivial stuff that is now patented, be rejected altogether. The present rule seems to be, to give a patent to everything that has not been patented before. A farmer may have used a simple device for many years, some sharp fellow coming along sees it, and procuring a patent, may prevent the farmer from using his own invention, unless he pays a royalty. Abuses of this kind are not rare; they should be made impossible. At present a patent is worth nothing to the inventor, until he has been at the expense of defending it in the courts. The government should keep out all the trivial stuff, and allow patents for only really useful and important inventions, and having once granted a patent, and taken pay for it, should defend it in the courts without cost to the inventor. A treaty, which has been made by representatives of our own, European and South American Governments, has been presented to the Senate. The nations in this union or league, agree that a patent granted in any one of these countries, shall be valid in all the others. This scheme seems to be favorable to our own inventors. But the people have something to say, as well as inventors, and before concerning ourselves with our foreign relations, let us have patent laws that are acceptable to farmers and others at home, and not be open to the abuses at present possible.

The Farm Workshop.

The farm workshop should be conveniently located as to both house and barns. Some of the operations to be performed therein will require the use of a fire, more particularly so in the winter, and therefore place the shop so that the strongest prevailing winds will carry all sparks away from other buildings. The size, character, and style of the building will vary with the means and taste of each builder. In length, it should give ample room for a board sixteen feet long, and wide enough to accommodate a good work-bench, leaving room to run a wagon in alongside, with plenty of space on each side to work at any part to good advantage. The hight should be at least eight feet to the eaves, and the roof may be either flat, span, or lean-to, as the builder desires, only it must be waterproof.

The elevations and plan, figures 1, 2 and 3, show a building twelve by twenty feet on the ground, and eight feet high, which will give plenty of room for all ordinary work. To build this will require about eight hundred feet of one-inch lumber, eight feet long, for sides and roof; two pieces two by six, twenty feet long; two pieces two by six, twelve feet long; eight pieces two by four, twenty feet long; four pieces two by four, twelve feet long, and eighty feet flooring for doors. The windows as shown in figures 1 and 2, are of eight by ten glass.

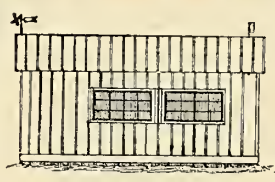


Fig. 1. Fig. 2.

Figure 4 shows how the sills and plates are placed. The siding, eight feet long, running up and down, is nailed firmly to the plates and sills. The gables are covered with lumber, lapping down over the ends six inches. The roof boards, eight feet long, run up and down, and are nailed securely to the plates, the ridge, and pieces between.

The roof should be covered with a sheathing of tarred-paper and shingled, or what is preferable, with a roofing of asbestos, which, if laid according to directions, will give a firm, lasting, and fire-proof roof. The sides may be simply battened, or what is far better, covered with a water-proof sheathing, battened and well painted. The extra cost of the sheathing will be repaid many times in comfort in cold, wet weather. The doors are made of flooring, having battens firmly fastened on with wrought nails, and hung with heavy strap-hinges. The large door should be hung to swing outwards, and can be

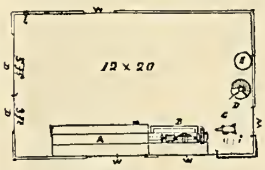


Fig. 3. Fig. 4.

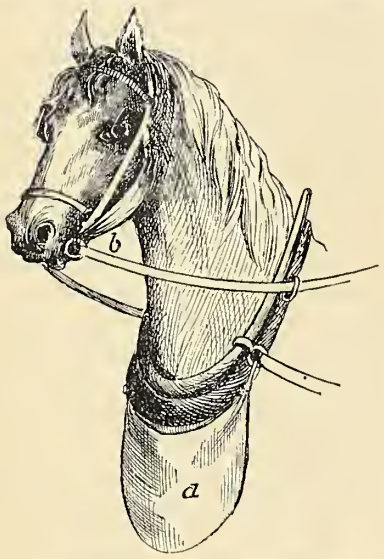
fastened by bolting a piece of two by four scantling on the front edge. The small door can swing inward and be provided with a strong lock and a latch.

There should be four or five boards nailed firmly to the under side of the plates and center-piece, as shown at *a* in figure 4. These may be of any width, the wider the better. Place a board through the center, and another midway each side of this; they will prevent the sides from being pushed apart by weight on the roof. Nail three or four boards from the center-piece to the ridge pole. The space under the roof can be utilized for storing odd pieces of lumber, etc., where it will season thoroughly, and be convenient when wanted.

Figure 3 shows the location of the work-bench *a*, foot-lathe *b*, anvil *c*, forge *d*, and the coal barrel *e*.

Aprons for Horses.

Horses, while at work should have some protection from the bot-flies, which lay their eggs upon their shoulders, neck and gullet during the summer months. An apron may be made of any coarse cloth, and fastened to the lower part of the collar, as shown at *d* in the engraving. The horse is most annoyed by the bot-flies when they dart under and strike the throat. To prevent this, a cloth



PROTECTIONS FROM FLIES.

can be fastened to the bit-rings and throat-latch, seen at *b*, thereby very materially adding to the comfort of the animal. Nervous horses are much more annoyed than others, some of them being almost frantic if not protected when the bot-flies are at their worst.

The Farmer's Liability for the Acts of His Beasts.

H. A. HAIGH.

GENERAL RULE AS TO TRESPASSES.—It is the duty of every one to keep his domestic animals upon his own premises. This duty extends to his own animals, and those that are entrusted to his keeping. If he fails to perform this duty, and the animals escape and go upon other person's lands, and there do injury, it is a trespass for which an action will lie, and damages may be recovered.

EXCEPTIONS TO GENERAL RULE.—This general statement is modified by the fact, that where the owner of lands trespassed upon is under obligation to keep them fenced against these particular animals, and he fails to do it, then no damages can be recovered. Such an obligation may arise by agreement between the owner of the land, and the owner of the trespassing animals; or it may be imposed by law, as, for example, the statutes requiring adjoining owners of improved lands to maintain the division fence between them in equal shares; or it may come about by custom, as is possibly the case in some of the newer States, where the universal custom of allowing domestic animals to run at large upon unenclosed lands, may have created an implied license for such animals to enter lands that are not enclosed with fences. But where fence regulations have been complied with, and domestic animals trespass notwithstanding, then their owners are clearly liable for the usual injuries resulting from such trespasses, like grazing off and trampling down grass, grain, or other crops.

INJURIES BY VICIOUS ANIMALS.—For the vicious acts of unruly domestic animals, like kicking, hooking or biting, the owner is generally liable. If a man owns an ugly beast, prone to do harm, it is his duty to prevent it from doing injury, both on his own premises and everywhere else, so that people may not suffer from its dangerous disposition. He must use due care to prevent any harm resulting from its evil propensity, and his liability will depend upon some negligence on his part, some failure of his duty to exercise due care. Of course if he does not know that the beast is dangerous, he cannot be expected or required to take extra precautions; if he has not had what in law amounts to notice of the evil disposition, he cannot be held liable for not guarding against it. Consequently, where a horse or an ox suddenly, and without any previous exhibition of bad temper, does a vicious act, like kicking or hooking a bystander, its owner is not, and in reason should not be, held liable. As to what amounts to notice of a vicious temper, the rule is that it should be sufficient to put a prudent man on his guard. It is not necessary that the animal should have already done harmful and vicious acts; if it has manifested a disposition to do such things, that is sufficient to notify the owner of the danger (25 Conn., 92). The notice, however, in order to lay the duty of precaution upon the owner, must be notice of a propensity to do the particular mischief that has been done. Notice that a dog will worry sheep, is not notice that he will attack a person (66 Ill., 309), or is notice that a horse will run away, notice that he will bite (11 Ind., 269); though it has been held that notice that a bull will attack and gore other cattle, is sufficient notice that he would so attack persons (27 Pa. St., 331). And there are certain kinds of mischief, which certain animals—for example, stallions—are prone by nature to do at a certain time of the year, and these must be guarded against by the owner, without any previous warning (26 Ind., 334).

It is no defense to a vicious injury by a domestic animal, that it was committed on the owner's own premises, and that the person injured was at the time a trespasser (17 Wend., 496). A man cannot defend his premises by such means as a ferocious beast, any more than by setting man-traps, or spring-guns (37 Iowa, 613). So, therefore, if the farmer keeps a savage dog, allows him to go unrestrained about the farm, and he attacks and injures a person who is casually crossing the land, the farmer will be liable, nay more, if the person be at the time a trespasser, hunting in the farmer's woods on Sunday, the farmer will have to pay for his lacerated legs, although he did not set on the dog (17 Wend., 497). Likewise, if the farmer has an ugly and ferocious bull, which he allows to traverse through his fields, and the animal pitches upon strolling fishermen, trespassers though they be, the farmer will have to pay for their broken ribs, or broken necks, as the case may be (3 C. & P., 138; 124 Mass., 49). One may doubtless defend his house against burglars by a savage dog, but if it bites and injures any one coming to the house on any innocent purpose, he will have to pay for the damage (41 Cal., 138). Some sort of negligence, however, on the part of the owner of the unruly beast, is necessary to create a liability. If one's horse breaks loose from him and runs away in the street, and there injures some one, or smashes a carriage, he is not liable merely because the horse got away. Some negligence must be shown, as that he left the horse unhitched, or his harness or wagon was known by him to be out of order, or unroadworthy, etc. (3 Allen, 565).

CONTRIBUTORY NEGLIGENCE EXCUSES.—As the right to damages depends upon negligence on the part of the owner, any contributory negligence on the part of the person injured, excuses the owner and relieves him from liability. It would be obviously unjust to allow a man to recover damages for an injury which he himself helped to bring about. Consequently, if I go into my neighbor's pasture, and begin teasing his mad bull, I cannot complain if the bull tosses me over the fence, and injures me in so doing. Undoubtedly it was negligence for my neighbor to keep such a savage animal unconfined, but it was also negligence for me to place myself needlessly in its way. But if my little children, not yet old enough to know the harm of going near, or teasing a fierce bull, went there in play and were injured, without any fault on my part, then the principle would not apply (4 Allen, 431; 10 Cox, 102).

INJURIES BY WILD BEASTS.—Formerly the mere keeping of a wild and ferocious beast, was of itself negligence; at least, damages might be recovered for the injuries done by one, without alleging negligence on the part of its owner (9 Q. B., 101); but this is not now the case. The keeping of wild beasts for exhibition, and the entertainment and instruction of the public, is now a ligitimate business, and all that can be demanded of their keepers, is the highest degree of care and caution, and if, notwithstanding these, they manage to get loose, and do harm, it must be referred to the category of accidental injuries, without ground for action (8 Barb., 630). It is no longer unlawful to parade some wild animals, as elephants and camels, on the public streets. If a horse is frightened by the mere appearance of these, and runs away and does damage, the owner of the elephant or camel is not responsible (38 Barb., 14).

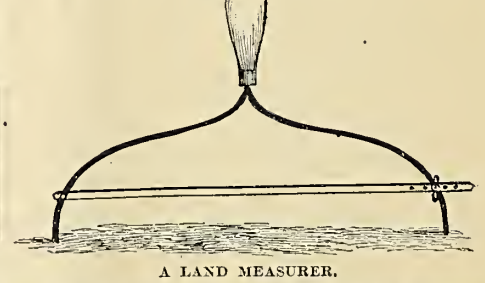
As to the liabilities of owners of dogs, for injuries done by them, the statutes of nearly, if not all of the States, have made provision. It would require too much space to give even an analysis of these statutes. Generally they remove the necessity of proving a *scienter*, that is, that the owner had knowledge of the dog's vicious disposition. The effect of them is generally to presume all dogs ugly, and to make the owners liable, irrespective of their knowledge on that point.

Beets Early and Late.

In most gardens it is customary to make a sowing of some early beet, and after the crop from this is used up, the table is supplied from the rows of the Long Smooth Blood, or other long and late variety. While the last named is the best of the late beets, it is, at its best, vastly inferior to the small early kinds. We regard the Early Egyptian as the finest beet with which we are acquainted. The Early Blood Turnip Beet is larger than the Egyptian, and while not quite equal to it in quality, is still a very good and useful variety. We manage to have one or the other of these all through summer and autumn, and usually our winter's supply is of the Blood Turnip, instead of the longer kinds. The Egyptian is sown every ten days until July, when abundant sowings of the Blood Turnip are made, to be used when large enough, and to have a sufficient supply for winter. In all sowings of beet seed, we sow with a free hand, with a view to abundant thinnings, which, of any beet, are the best summer greens. In growing early beets, we are apt to leave them too close together; five inches apart in the rows is quite near enough; those intended for winter may be thinned still more by pulling the roots, as wanted to supply the kitchen, from those parts of the rows in which the beets are the thickest. In storing beets for winter, be careful that they do not shrivel; covering the roots with sand prevents this and keeps them fresh.

A Land Measurer.

An instrument for measuring land is shown in the engraving. It consists of a wooden handle, into the bottom of which are fastened two stout curved iron rods. A cross-bar, bolted to one rod, and screwed to the other with a thumb-screw, sets

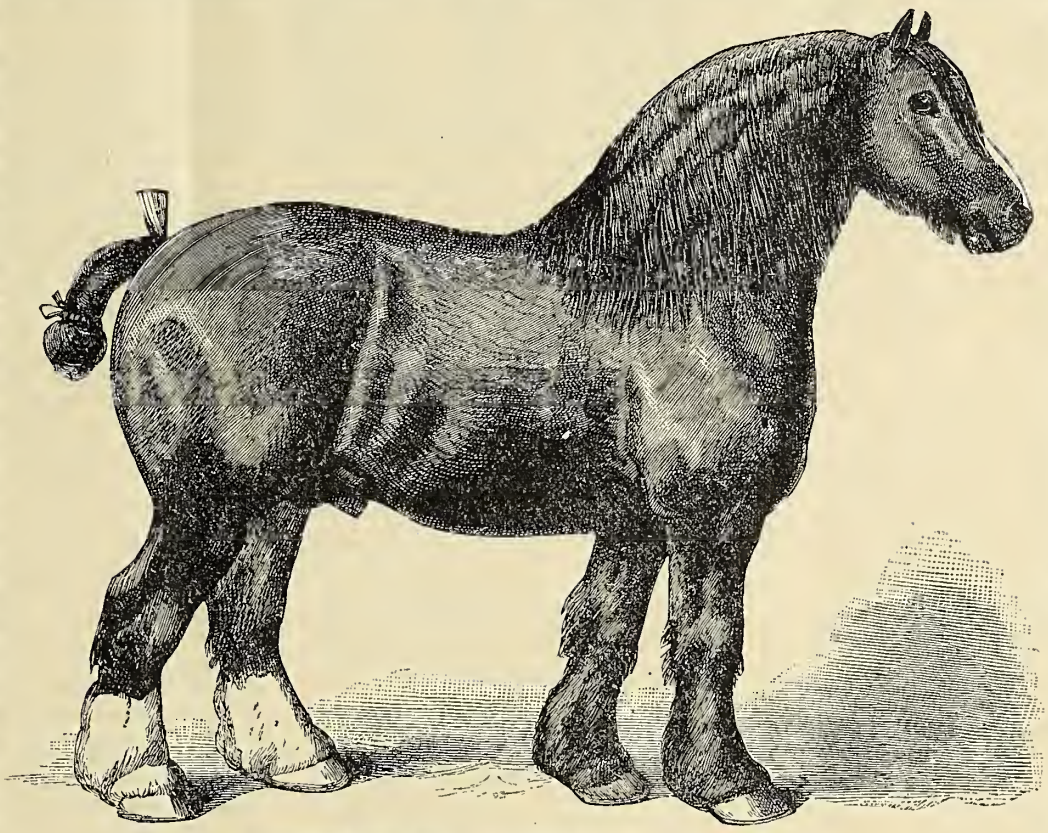


A LAND MEASURER.

the ends of the two rods at the desired distance apart. The measurer may be arranged so that the distance is one quarter of a rod, or it may be more or less. The implement is taken in one hand, and alternately turned upon each leg or end of the rod. It is only necessary to keep moving in a straight line. Measuring in this way is much more accurate than pacing, and may be done almost as rapidly.

The Improved English Shire Horse.

Our breeders are awake to the fact that there is much good material in the English Shire horse, inasmuch as they are importing descendents of this stock more largely than at any former time. Great ungainly brutes they were, but having been improved by judicious crosses and selections, they are no longer looked upon as mere elephantine masses of flesh and bone. When bred with care they rival the Clydes and Normans for form, style, nerve, power, docility, and endurance, while for size they are simply stupendous. They offer grand stock to build upon, having a relation to the finer and high-bred races the qualities, as it were, of a rich soil, abundant nutrition. The cross will "nick well," provided it be not too violent, and the foal has the best possible chance for full developement and vigorous growth, both before and after birth. How often we overlook the importance of a good dam. No breeder should ever breed from a poor one with any expectation of improvement. Her influence extends for generations, usually alternating with the sex of the progeny. Thus the sons of a fine mare will be more likely to reproduce her good qualities in their daughters, than will the mare herself in her own daughters; the latter will very likely reflect their sires' rather than their dams' good points. The improved horses, a superb example of which is shown in the engraving, are firm in bone and compact in every way without deterioration in weight. They are said to look like smaller horses, but to weigh much heavier than they look, and that is the secret of their excellence. If great soft bones, flabby muscles, and fat be compared with fine, hard, solid bone and flesh, easily kept in condition, there will be found naturally greater weight, greater power, greater endurance, a better constitution, and greater value. The old style of mares have grand digestion and great capacity for turning hay and grass into flesh and milk. They were not easy keepers, but great producers, like the big milking cows. Their progeny are, therefore, splendidly developed, share the finer and firmer qualities of their sires, their nerve power and willingness to work, as well as the strong muscles to do it. They inherit and transmit also to their daughters, the valuable qualities of their dams,' weight, feeding capacity, constitution, etc., and so we have great improvement, and may look for still greater. The horse shown in the engraving recently won the first prize as a three-year-old at the Derby Royal Agricultural Show, and has twice been champion stallion at the Horse Show in London. In show order, he weighs two thousand five hundred and twenty-six pounds—a truly enormous weight for so young a horse. He is seventeen hands and one inch high, ninety-eight inches in girth, one hundred and two inches around the belly. His fore-arm measures thirty and a half inches around, and the fore-leg below the knee twelve and a half, the hind-leg below the hock fifteen, the thigh above the hock twenty-four and a quarter, and his hight to top of quarters is sixty-eight and a half inches. He is the property of Mr. Walter Gilbey, the President of the English Shire Horse Society. When this stock is acclimated in this country, and improved by breeding, we may expect it to become the foundation of a valuable race of work-horses.



AN OLD ENGLISH SHIRE HORSE.—*Engraved for the American Agriculturist.*

The North Carolina Phosphates.

DR. CHAS. W. DABNEY, DIRECTOR NORTH CAROLINA EXPERIMENT STATION.

The phosphates recently discovered in North Carolina will undoubtedly take an important place in the trade, and, in time, reduce the cost of all superphosphates. This North Carolina rock is very massive near the surface, and convenient to the lines of transportation. That it is found in sand and not in clay, as is the South Carolina rock, is a point very much in its favor. The latter rock is so porous and full of holes, as to require breaking up and washing, to rid it of the clay. The North Carolina rock lies in a sand or loam, and can be dug out in large rounded lumps, from which the sand may be brushed off without difficulty.

In South Carolina, the rock is mined in open ditches, thrown out upon the bank with the accompanying clay, and a large per cent of water, and wheeled to the railroad, and shipped on cars to the washing and drying works. At the washing establishment this rock is broken, run through a washing machine, fed usually by a large force-pump, and finally dried by artificial heat. The North Carolina rock is easier to mine from the loose sand or loam. It occurs at about the same depth, but the amount obtained per acre is much greater. In a number of trial pits, the yield was eight hundred tons per acre. This is a very remarkable output. The North Carolina rock can be delivered on the bank, and loaded on the cars with only four per cent of earth adhering to it. A simple brushing-machine will remove this.

Rock in this condition, directly from the pits, contains not exceeding one per cent of water. South Carolina rock is always dried twice, once by the miner before it is sold, and again by the manufacturer. The North Carolina rock would not need drying at all, except to make it grind better. The great saving in preparing the rock for market is thus apparent. While six dollars per ton is the lowest figure ever reached by South Carolina phosphate rock, this North Carolina rock can be sold, delivered on the railroad, at three dollars and fifty cents per ton. When we recall how great the reduction in the price of all fertilizers has been since the South Carolina phosphate mines were opened, the significance of this discovery for all farmers, who buy any manures, based upon superphosphates, will be apparent. The first North Carolina phosphate found was of low grade, containing from thirty to forty per cent of phosphate of lime. Recently extensive beds have been discovered, yielding rock fully equal to that of South Carolina, of which fifty-five per cent is the usual standard. The rock crushes and grinds well, as it is extremely brittle. This latter property is due to the small per cent of sand, which is the leading impurity, and of all adulterating materials the one least objectionable. The South Carolina phosphate is mixed with carbonate of lime, oxide of iron, and alumina, all of which combine with sulphuric acid, when the rock comes to be made into superphosphate. Acid must be added for these as well as to dissolve the phosphate, and when it has been dissolved, they are the main cause of that retrograde action, known as reversion of phosphoric acid. The North Carolina rock contains very little carbonate, iron, or alumina, and requires one-fourth less acid than the South Carolina rock. The sand is entirely neutral toward the acid. This is another point in favor of the North Carolina rock, which farmers as well as manufacturers will appreciate. These phosphatic rocks have laid in their beds for untold ages. The virgin soil of a new country did not need them. Wasteful farming soon exhausted the soil, and when needed to return lost fertility, these phosphates came to light. So when whales became scarce, and oil dear, heretofore unsuspected stores were discovered. What else has nature in store for us?

Why the Potato Experiments Differ.

We have a great variety of experiments with seed potatoes, from experiment stations, model farms, and amateur farmers, showing the great advantage of large and small potatoes, seed-end and stem-end, whole seed and cut, eyes with much flesh, and mere parings; leading the reader to contradictory conclusions, and making of the seed question a muddle. In many cases the story is only half told, and the factors in the case, aside from the particular treatment of the seed, are overlooked. The condition of the soil, fine or lumpy, rich or poor, the character of the season, wet or dry; the cultivation, little or much, have quite as much to do with the success of the crop, as the state of the seed. The contradictory results so often reached by intelligent and fair-minded men, emphasize the great importance of a thorough preparation of the soil, making it well pulverized, well manured, and well drained. Maximum crops, three hundred to five hundred bushels to the acre, can only be had where there is this thorough preparation and suitable tillage, until the vines are in blossom. The average yield of potatoes in many farming districts with any treatment of seed is not much over a hundred, if it equals it.

Walks and Talks on the Farm.

New Series.—No. 1.

JOSEPH HARRIS, M. S.

It is over eight years since the last number of my "Walks and Talks on the Farm" appeared in the *American Agriculturist*. Since then, my good friend and neighbor, the Deacon, and I have had many walks and talks together on the farm. The Deacon's farm has greatly improved. A portion of his land has been underdrained and produces splendid crops. He plows earlier and cultivates more thoroughly, and if he is not careful he will soon be a model farmer. I do not think he keeps any more stock or makes any more or better manure, but he grows better and cleaner crops simply because he works his land better. Like most of the farmers in this section, he has been using more or less phosphates, especially for winter wheat. Sometimes he thinks it pays and sometimes not. The truth is, that nearly half of my farm and the Deacon's consist of low, mucky land which, if partially drained and well worked, will yield good crops with little or no manure. Last year the Deacon raised an acre or more of good winter cabbages on this black mucky soil without any manure. And land which is rich enough to produce good cabbage, certainly will produce ordinary farm crops, such as corn, oats, potatoes, and grass. Adjoining the cabbages, on similar land, he sowed a few acres of millet and had a splendid crop; the land was left remarkably clean and in good condition. The other half of the Deacon's farm consists of higher, drier, and poorer land—but which, when thoroughly cultivated and kept free from weeds, will produce good crops of wheat, beans, corn, and clover.

I have always told the Deacon, that the best way to manage his farm was to keep more stock and make more manure, even if he had to buy bran, malt-sprouts, and corn, to feed the animals in connection with the coarse fodder raised on the farm. I have not converted the Deacon and never shall, though I felt strong hopes of him last spring when he set out an acre of cabbages. He had so much success with them, that doubtless he will continue to grow cabbages as a farm crop for years to come.

On my own farm there has been no change in the management during the last nine years. I continue to keep a large amount of stock, and to buy considerable food for them, especially that which will make rich manure. I have adopted this method for about twenty years, and I see no reason for changing it.

Even the Deacon agrees with me now, that the plan, in my circumstances, is a good one. He criticised me formerly, because he did not understand what I was aiming at. He thought I was buying feed and consuming nearly everything that I raised on the farm, in order to make manure for growing ordinary farm crops. He thought it would not pay. He may be right, though I think much might be said on the other side.

In my own case, however, I use manure for growing mangel-wurtzel, beets, carrots, parsnips, cabbages, onions, and similar crops, which can only be grown on the richest and cleanest of land. During the last eight years, I have greatly extended the area of land devoted to these crops. I can not compete with the Rochester nurserymen in buying manure from the city stables. It is too far to draw it and they take all there is. I am obliged to make my own. What I make is far richer in plant-food and more valuable than any I could buy. During the last eight years the price of superphosphate has been reduced and the quality improved. I use it freely and with great advantage.

The Deacon and I are eight years older. Twenty years ago this spring, I set out about a hundred Norway spruces. They are now over forty feet high. They are beautiful, healthy, and vigorous. When I think how small they were when I set them out, and what magnificent trees they are now, I feel that the years are steadily advancing and that I must be getting older. So of my Northern Spy apple orchard. The trees have grown until the branches almost meet, and what is better, they bear fruit abundantly every year. There has been no change in the management of the orchard during the last seventeen years, during which time it has been in grass. The trees were set out in 1857, and for the first ten years the land was planted with corn, potatoes, etc. Since the trees commenced to bear, the land has been kept as a pasture for sheep and pigs. It has been repeatedly top-dressed with manure. And whenever we have any weeds or rubbish of any kind, it is drawn into the orchard and spread over the land. It is convenient to have such a place. We are never at a loss where to put weed-seeds, coal-ashes, refuse lime, turnip, beet, and cabbage leaves, carrot and parsnip tops. Anything that will make manure or mulch the land, anything that the pigs will eat in whole or in part is taken to the orchard. In this way the land has become exceedingly rich. In the spring, the moment the snow is off the land, the grass begins to start and we soon have a fine bite for the ewes and lambs. And all through the season, no matter how dry it is, we are always sure of a little good pasture in the orchard. I am so well satisfied with the advantages of this method of managing an orchard, that I have set out several acres of apple trees near the barn-yard, with the ultimate intention of seeding it down to grass and keeping it as a permanent pasture. In the meantime I keep the land between the rows of trees under cultivation. In fact, I am using the land as a Field-Garden. It is heavily manured, carefully and repeatedly plowed late in the autumn and early in the spring, and worked into the finest condition for hoed crops, drilled in wide enough apart to admit the use of a cultivator. We only cultivate one way; and between the rows of apple trees, running in the direction in which we cultivate, we set out currant bushes which now bear large crops. It takes a good many years to make our dry, sandy upland rich enough for permanent pasture. But I think the above method will accomplish the object, and in the meantime much more than pay its own way. I do not say that this is the best method of preparing land for a permanent pasture. It depends on circumstances.

Five years ago I was at Rothamsted, after an absence of thirty years. Mr. Lawes, or Sir John Bennett Lawes, as he now is called, in recognition of his pre-eminent services in the field of agricultural research, has converted many acres of the land formerly under tillage into permanent pasture. A fine herd of Hereford steers were grazing on the land. It was stocked heavy enough to keep the grass well cropped, and the steers were fed every day all the American cotton-seed cake they would eat. Of all vegetable substances, there is nothing which makes such rich manure as cotton-seed cake. It may not be as nutritious as linseed cake, but it is richer in nitrogen, phosphates and potash. And as Dr. Voelcker well remarked, it has this practical advantage: You can feed fatting cattle or sheep all they will eat. They will not eat too much. With linseed-oil cake, corn and other grain, as we all know, we have to be careful every day to measure out the proper allowance. It is necessary to have a reliable man do the feeding, or some days the animals will get too much and some days too little, and their digestive organs are soon out of order.

In process of time any pasture land stocked with cattle or sheep having an unlimited supply of cotton-seed cake, must get very rich, and there are many places in this country where the plan could be adopted to advantage. Such, for instance, as the so-called barrens of Long Island, and hundreds of thousands of acres on the Atlantic slope. There is also much hilly land which is now comparatively unproductive, and on which it would be an expensive operation, even if we had it, to draw manure. This poor land may be slowly and surely reclaimed by stocking it with sheep or cattle, and feeding them all the cotton-seed cake they would eat.

Since we last wrote these Walks and Talks on the Farm, the subject of ensilage has attracted much attention. Its success is mainly due to the fact that corn fodder is one of the most profitable crops which can be grown for feeding cattle, horses and sheep. The advocates of ensilage have done much good by calling attention to the great value of corn fodder. Whether it is better to cure the fodder or to preserve it in the green state, is a question of cost. One fact should not be overlooked; our dry, hot climate is admirably adapted, not only for growing the corn-fodder, but also for curing it. I cut my corn-fodder with a self-raking reaper, tie it into bundles, stand it up in small shocks, and afterwards put nine of these shocks into one large central shock, carefully made and tied at the top with willow or rye-straw bands. If properly made, the corn-fodder keeps perfectly in these large shocks, and can be drawn in from time to time during the winter—drawing, of course, as much at one time as can be properly stored away.

One of the most remarkable changes which has taken place in our agriculture during the past eight years is the general use of superphosphate for winter wheat. That it pays the farmers to use it, there can be no doubt. Farmers are not inclined to make accurate experiments; but they do not continue to pay out money year after year for an article the use of which is unprofitable. How long the use of phosphates will continue profitable, will depend on the amount of organic matter existing in the soil, and upon the use which is made of the increased crops obtained from the use of the phosphates. If all the crops are sold off the farm, we should soon, except in rare cases, so far impoverish the soil that profitable crops could not be grown. On the other hand, if we use the money obtained from the increased crops of wheat, barley, potatoes, vegetables, etc., to buy a small amount of bran, cotton-seed cake, malt-sprouts, etc., to feed out in connection with our straw, corn-fodder, clover hay, etc., the use of phosphates will enrich rather than impoverish the land.

Year before last the wheat crop in this section was the best I have known for thirty-two years. The Deacon has lived here much longer than this, and he says he has never before known so good a crop. And farmers who cleared up the land from the original forest say the same thing. One of them told me—and he is a reliable man—that he got fifteen hundred bushels of wheat from thirty acres. It was not phosphates in this case; he drilled in ashes and plaster; but it was not ashes and plaster that produced the crop. Whatever the cause, it is evident that our soils are still capable of producing good crops of wheat.

One thing is certain, our farmers as a rule are working their land better than formerly. We have better plows, better cultivators, better harrows, better rollers, and better horse-hoes, though the latter are not half as good as they ought to be. We do more fall-plowing. Even the Deacon harrowed his corn-stubble last fall, and got it ready to drill in oats this spring. We are getting more and more in the habit of preparing our land in the autumn. The Deacon is not here to-day, or perhaps he might dispute some of these statements.

"Hard times"—I should say so. But the American farmer is not a grumbler—certainly not when he has good cause to grumble. He is one of the most hopeful and energetic of men. Last year, he had no wheat, no beans, no fruit. He had good potatoes, but the price was so low that they hardly paid for digging and marketing. He had a great crop of oats, and a fair crop of hay, but the crops he depended on to bring in the money were essentially a failure. My own wheat crop was the poorest I have known for thirty-four years. But we have lived through it. And to-day (June 2), the country never looked more beautiful, or the prospects brighter. Some farmers say the dry weather in April gave the wheat a set-back. But, as a rule, our wheat never looked better. We feel decidedly encouraged, and look for better times.

I was in New York last week, and called at the *American Agriculturist* office. They seemed pleased to see me. The truth is, the editors look more like farmers than city people. The managing editor was in his shirt-sleeves, and works as hard as any

farmer I know. I was not surprised to learn that the *American Agriculturist* was never in more prosperous circumstances than at the present time. It is certainly a noble paper for everybody.

Fine Action and Good Gaits in Horses.

Good gaits and fine showy action in a horse add greatly to his value. They are not altogether brought about by training, though this does a great deal. Many a well formed man, especially if he grew fast when a boy, and was laughed at and felt awkward, goes through life with the style of a shy, shambling, bashful lad. Very likely he never stands erect, carries one shoulder higher than the other, his head on one side and even walks half sideways and does not know it. It is just so with horses. If a farmer's team comes into the city trainer's hands at four to six years old, even if dull, stupid, and logy, they will wake up to business, and in two months even their breeder will not know them. They will hold their heads high, pick up their feet with life and put them down as if they were not afraid. Altogether there will be the style of life and training, as if they knew they were well trained and were proud of the show. At seven or eight years old it is too late, they will be a plow team to the end. This sort of style is all but essential for carriage and road horses, but another sort is needed for the particularly useful gaits of horses of all work, namely, the walk and the trot, both in carrrying heavy loads and with very light ones.

All the training in the world will not give a horse good legs, and with this wanting, the spirit and the sort of style which is developed by training and oats, counts in real work and service for very little. A horse needs both, and then there is some hope for him. With a good set of legs the trainer has the right foundation to build upon. It is quite a "point," as they say "on the street" to know good legs when you see them. It does not take an expert to tell if a set of legs look all right from the side, when the horse is either still or in action, but the real points of views to judge critically are directly in front or behind. We give three styles of legs by which all may be classified, as they vary from the perfect form towards either extreme. No. 1 in each set represents the perfect pair of legs. The feet point directly forward, are round, well up at the heels, large, solid, and free from either grooves and ridges running up and down, or from irregularity in the lines of growth, which always form fine parallel striæ in a healthy hoof. It is a suspicious circumstance if these are filed off and the hoof made smooth. The fact is, nothing is a surer index of previous good health than the hoof. If a horse has a fit of sickness the hoofs

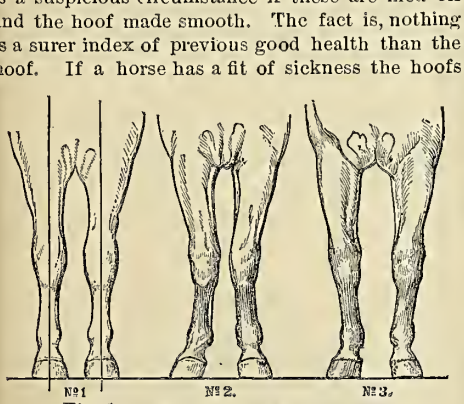


Fig. 1.—GOOD AND BAD FORE-LEGS.

cease growing, and when they begin again with returning health they all show a ridge, so if from any cause one foot is effected by fever, or a wound, it alone will show it almost certainly by increased or decreased growth, as the case may be. The joints are large, hard, bony, and free from meat or puffs. Below the hocks and knees the bone of the leg is flat, and of good size for the weight of the animal; the cords are hard as bone, free from muscle, and the skin free from scars and drawn tightly over the whole. Avoid slender pasterns. The pastern bones and those forming the pedal joint should have all the breadth and solidity possible. The muscular portion of the legs—the fore arms and the thighs—should be large and even, and the muscles should stand out individually distinct and hard. The whole leg should be almost perfectly straight, that is perpendicular, as indicated by the lines drawn through No. 1 in each set.

When the hoofs point out, the knees and hocks tend inward, as shown in No. 2 of each set, and when the hoofs point in the knees and hocks are thrown outward in a less obvious, but yet in an awkward way. This is shown in No. 3. With the

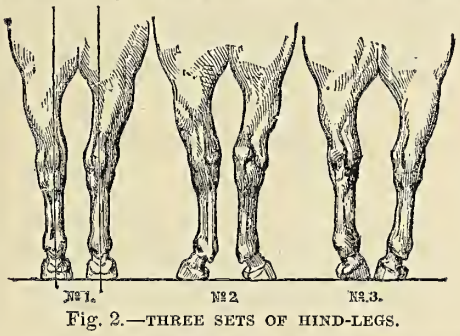


Fig. 2.—THREE SETS OF HIND-LEGS.

idea clearly in his mind and a little observation, one will soon be able to recognize a good and also a bad set of legs on almost any style of horse.

Fill up the Vacancies.

Hills are sometimes missing in the corn-field, from poor seed, crows, cut-worms and other causes. It does not pay to leave these places vacant. If replanted, they may produce good fodder, even when too late for ears to form. Idle land will produce a crop of weeds, which, by going to seed, bring trouble for many succeeding years. It is well to replant with a smaller and quicker growing variety, that will yet have time to mature. The two sorts will not mix badly, because the periods for crossing come at different times. The appearance of a corn field is much improved by filling up the vacant hills. We have known of replanting being done as late as July, and the labor rewarded with a fair crop of soft corn for the pigs, besides a heavy growth of excellent fodder. A considerable area where corn or some other crop has failed may sometimes be profitably sown to buckwheat.

Feeding the Silk-worm.

M. J. G. HAMMACK.

There are three kinds of silk-worms: Annuals, Bivoltines, and Trivoltines. The Annuals produce but one brood a year, Bivoltines two broods, and Trivoltines three. After considerable experience we are satisfied, that the last two breeds cannot be raised as profitably as the pure Annuals. Annuals' eggs will not hatch prematurely, but the hatching cannot be deferred for any length of time, after the trees are in leaf, except by using ice, in which case the vitality of the eggs is more or less injured. It is necessary, in any climate, to watch the advance of the mulberry tree in the spring.

The following are some of the terms used in silk culture: grain is silk-worm eggs; the cocoonery is a house where the worms are raised; moulting is the time at which the worms change their skins. Chrysalis is the form assumed by the worm inside the cocoon. Floss silk is loose silk that envelops the cocoon, and is carded and spun like cotton. The cocoon is the silken covering with which the worm surrounds itself before passing into the chrysalis state. Raw silk is silk that is reeled from cocoons. The ages are periods between two moults; green-cocoons is a name frequently applied to fresh or unchoked cocoons. Pierced cocoons are those that the moth is allowed to perforate, and are sold for waste silk. Choked cocoons are those stifled, or have the chrysalis killed, by steam or in the hot sun. Litter is the accumulation where the worms lay, of dried and partly consumed leaves, and offal of the worms themselves.

GATHERING THE LEAVES.—If the trees are desired for standards, at two years old, they may be stripped of their leaves. The leaves must not be gathered before sunrise or after sunset, when dew or fog makes them damp. They should be gathered before nine o'clock in the morning for the day's feed, and before seven o'clock in the evening for the morning's feed. If leaves are dusty, they should be wiped with a dry cloth. In case of threatened rain, leaves may be gathered two days ahead, and kept in a cool place. If it should become a necessity to gather leaves in the rain, spread them out on the floor in the shade in an airy place, or dry them by shaking in a sheet. Give to the young worms the best, tender leaves, after the second moult. After the last moult, give to the worms the thickest and best leaves the trees produce.

Silk-worms should be fed during the day and night, from the hatching to the spinning time. Give them all they can eat, at regular hours. Worms matured in twenty-five or thirty days will produce more silk, and of a finer quality, than those fed forty days, and the short-lived worms are less liable to disease. Worms will never leave the feeding shelves if properly fed. The worms should receive light meals, first, at six in the morning; second, at eight; third, at ten; noon, two o'clock, four, six, eight, and ten. In very warm weather, an extra feed should be given at midnight. On cool days the worms will consume less food than in warm ones. The young silk-worms should have one single layer of chopped leaves for their meals, and if these become dry, feed again in half an hour.

Raising Seeds.

We are asked why we do not encourage people to raise their own seeds, instead of buying them every year. Seed-raising is an art, and requires more care than the average farmer can afford to give to it. Seedsmen have their seeds raised by men who make a business of it, who grow but one variety of a kind, and avoid all chance of "mixing" or crossing. One who has a garden can hardly be persuaded to select his first ripened tomatoes or Lima beans for seed; he wishes these for the table. Unless a vegetable can be kept up to its best condition it will deteriorate. Take tomatoes for example; the plants should be raised expressly for seed. As soon as they come into bearing, every plant that does not have fruit quite up to the best of its kind in form and productiveness, is to be pulled up, and all malformed fruits on those that are left, are cut away. Then only the earliest clusters are allowed to ripen, those which set late are cut off, and the whole strength of the plant directed to ripening the first fruit that is set. Take squashes for another example, and it is the same with melons, cucumbers, and all of the family. Few who have gardens content themselves with a single variety of squash. There are few plants so likely to mix, through the agency of bees. We know of a case in which the Hubbard Squash had been grown in the same garden with other squashes for several years, and the seed was yearly saved and planted. At the time we saw the squashes, they were mostly yellow, and instead of the pointed end, so characteristic of the Hubbard, many of them had the broad, flat, blossom end belonging to other kinds; indeed there was not a typical Hubbard in the lot. If seeds are to be raised, that should be the leading object for which the plants are grown. It is poor economy to sow seeds of doubtful purity, in order to avoid a small outlay for those of good quality.

Green-House and Window Plants.

All repairs, painting, etc., should be done to the green-house in good season. If plants are kept in the green-house, give all needed shade and watering.....Plants outside, whether from the green-house or the window-garden, should have proper care, shade the pots from the hot sun by placing boards against them; give water freely, repot, if an inspection of the ball of earth shows that they need it; turn the pots occasionally to break off any roots that have run through the hole in the bottom of the pot.....Insects often do much mischief to plants in pots, and must be removed.....Make cuttings of plants of which a fresh stock is required.

The Need of the West.

The West needs more live-stock. That those States and Territories which grow an abundance of natural pasturage for twice the stock they now have, are in need of more animals, is evident. But that those States in which the range is restricted are in need of more stock, can be demonstrated on the basis of their over-production of corn. While all the States of the West produce more corn than is consumed at home, only Kansas and Nebraska produce a large surplus for export; and we shall consider these only, although the conclusion reached will apply to other States with a force proportionate to their surplus. In 1883, Kansas produced 172,800,900 bushels of corn, of which amount 77,760,405 bushels, or 45 per cent, was retained for home consumption, while 95,040,495 bushels, 55 per cent of the entire crop, were exported. In the same year, Nebraska produced 101,272,900 bushels; of this, 59,831,551 bushels, 59 per cent. of the whole crop, were retained for home consumption, while 41,524,349 bushels, 41 per cent. of the crop were exported. Thus, of their crops for 1883, these two States consumed at home, 137,514,956 bushels, and exported, 136,564,844 bushels, practically half the crop. During this time, the railroad charges for corn from Kansas City to Chicago, were, by the car-load, 20 cents per one hundred pounds. At this rate, the cost of transporting the surplus corn of Kansas, from Kansas City to Chicago, would be $10,644,535.40. During the same time, the railroad charges for transporting corn from Omaha to Chicago, were 25 cents per hundred pounds; at this rate, to transport the Nebraska surplus from Omaha to Chicago, cost $5,813,408.86. The cost of transporting the surplus of both States to Chicago, was $16,457,944.26. If this surplus had been reduced to pork, at the the rate of ten pounds of pork to each bushel of corn, the product would have been, 1,365,648,440 pounds—950,404,950 pounds from Kansas, and 415,243,490 pounds from Nebraska. During the period of exportation, the railroad charges for transporting live hogs from Kansas City to Chicago, were $42.50 per car-load of 20,000 pounds. At this rate, it would have cost $2 019,600 to transport from Kansas City to Chicago, the Kansas surplus of corn, if it had been in the shape of pork. During the same period, the railroad charges for transporting live hogs from Omaha to Chicago, were $70 per car-load. At this rate, to have transported from Omaha to Chicago, the Nebraska corn surplus in the shape of live hogs, would have cost $1,453,340. The cost for the two States, would have been, $3,472,940, a saving on freight alone, by transforming the corn into live hogs, of $12,985,004.26, or almost 400 per cent. But to this, it may be objected that all this surplus did not reach so far east as Chicago. This is true; but the cost of transporting the corn from the various points in these two States to Kansas City or Omaha, would far more than compensate for this, as the transportation tariffs are heavy for short distances on branch roads.

Some of this corn went east of Chicago. Let us calculate what would be saved on the transportation from Chicago to New York, of one million bushels of corn, by changing it into live hogs. The railroad charges last year for transporting grain from Chicago to New York, were 30 cents per one hundred pounds; at this rate, the cost of transporting 1,000,000 bushels of corn, would be $168,000. Transformed into pork, the transportation would cost 35 cents per hundred pounds, or for the million bushels in this shape, $35,000; a saving of nearly 400 per cent.

These figures show plainly why that portion of the West which produces a surplus of corn above home consumption, needs more live-stock. The saving in transportation alone, when the corn is converted into live hogs and shipped in such form, aggregates an enormous amount, and if it were put into the form of beef or mutton, the saving would be substantially the same. Cattle are shipped from Omaha or Kansas City to Chicago, at a less rate than hogs, and sheep at the same.

But every bushel of corn shipped, represents so much fertility taken from the soil, leaving nothing to replace it. The West needs live-stock to maintain the fertility of its land. Without stock, the more intensive the farming, the larger the crops, and the more rapidly will the land be impoverished. So long as the West is without live-stock to consume its productions at home, just so long will the impoverishing of the soil continue. On the other hand, the fertility of the soil may be maintained by feeding produce to farm animals, saving and applying their manure, liquid and solid, and reinforcing this with a little green manuring. The value of this animal manure, which would represent just so much gain to the farmer, can not be accurately calculated. But as we have made our former calculations upon the basis of a production of ten pounds of live pork from each bushel of corn, we would have 46 pounds of manure for each bushel fed, estimating a bushel of shelled corn at 56 pounds. This would have given Kansas and Nebraska 3,139,500 tons of animal manure, if the surplus corn of last year's crop had been fed to hogs. These States need all the fertilizing materials at their command to keep up the land, hence they need live-stock to consume surplus production.

Passing over with only a mention the profitable work offered by stock-raising, at a season when grain demands no attention, we wish to notice another particular wherein more stock would be advantageous to these States. One travelling through these States, is struck with the lack of cribs and granaries. As a result, the farmers are compelled to sell their surplus grain as soon as it is harvested. The consequent rush of grain to market at certain seasons of the year, brings prices down to low figures, which the necessities of the farmers compel them to accept. If the grain was fed to stock, it, so-to-speak, could be held for a higher price.

Animal Ailments.

DR. D. D. SLADE.

SWINE PLAGUE.—E. T. Beall, Liberty, Va.—The disease which killed the three fine hogs that had a range of seventy-five acres and plenty of running spring water, was undoubtedly, from the description of symptoms, the swine plague, although this disease may have its seat in almost any organ, its presence in the lungs to a greater or less extent, is now considered as characteristic. Treatment in our present knowledge of the affection is not to be considered—the disease is highly contagious. Warts may be safely destroyed by tying a strong thread about their necks, or by cutting them off with scissors, and touching the surface with lunar caustic or blue stone.

MANGE IN DOG.—Mrs. H. A. Fink, Westerly, R. I.—The Gordon setter undoubtedly has skin acari, or animal parasites, which burrow in the tissues, and cause great, and uncontrollable itching, as well as scabs and sores upon the surface. Oil well the surface affected, and then with soapsuds (castile soap is preferable) remove the hardened crusts. Apply once a day, a small quantity of sulphur ointment, well rubbed into all the parts of the skin where the eruption has made its appearance.

NAVICULAR JOINT DISEASE—RINGBONE—THICKENED SINEWS.—C. L. Linsley, Bellows Falls, Vt.—In the very early stages of the Navicular disease, rest at pasture may give the parts a chance to recover. A wet pasture free from stones is preferable. Remove the shoes—or the animal may be kept standing in wet clay in the stall during the day time, and removed to a dry stall at night. If the disease has gone on to ulceration, the cure is longer and more uncertain. A seton through the frog, which must be passed by a competent person, is sometimes of service. If the lameness continues after a month from the removal of the seton, this treatment at least, is useless. The seton should remain in place for four or five weeks. In the treatment of Ringbone, rest is often essential in the early stages—allay the inflammation by soothing measures, such as fomentation of the parts, and then blister, when soreness and heat have lessened. When this disease is in the fore leg—the heel comes to the ground first, and a thin-heeled bar-shoe must be put on. If, on the contrary, the animal walks on his toe, as when Ringbone occupies the hind limbs, a high-heeled shoe will enable him to travel more comfortably. Thickened sinews in the first stages, may be benefited by rest at pasture, and by blistering occasionally. The disease is due to strains and over exertion, and very rarely do the parts assume their original, normal condition, and when benefited by treatment, are prone to return to their unnatural state when the animal is put to work.

BLACK LEG IN CATTLE.—A correspondent from New Mexico, advocates the removal of the tail and ears in cases of real or supposed Black Leg in cattle. Whereas, in the very early stages, bleeding, properly performed, may be advisable, it seems to us a rather heroic, if not barbarous treatment to subject every suspected animal to the above operation. At any rate, this proceeding would not be satisfactory to humane people.

SWOLLEN HEAD IN PIG.—G. M. Wertz, Johnstown, Pa., has a pig six mouths old, with face and head swollen to an extreme extent for at least three weeks. The pig is of common stock, has not refused food, but eats indifferently. This condition is evidently due to a scrofulous disease of the bones, which become infiltrated with a jelly-like substance. In all probability the disease will prove fatal, if the diagnosis is correct. No treatment is advisable, as the animal thus diseased is unfit for breeding or for food.

SPRUNG KNEES IN HORSES.—J. H. Levy, Franklinsville, Gloucester Co., New Jersey.—The condition known as Sprung Knees, is indicative of over exertion, and of an undue amount of work which has been thrown upon the ligaments of the fore-limbs. It is usually impossible to fix upon any one portion as being at fault more than another, where the entire limb participates in this abnormal state. Undoubtedly there is an hereditary tendency in some horses to take on this peculiar condition. No treatment can be of any avail, and beyond the unsightly appearance caused by the trouble, the animal is not, as a rule, materially injured for moderate work.

UMBILICAL HERNIA.—W. H. Allen, Calais, Maine. The bunch formed on the belly or navel is undoubtedly a rupture, a condition not uncommon in this region of the body in young animals. A correct diagnosis may be obtained by gently kneading the contents and at the same time endeavoring to push them up into the abdomen. If they return with a gurgling sound, it is a rupture. To keep the intestines in place, make a soft pad of folded cloth or any similar material, and attach it with sufficient pressure to a band passing round the body and fastened to a similar one running round the neck. Blistering the parts repeatedly is sometimes effectual, when the rupture is not large, and not of long standing. The bunch should by no means be punctured.

FOUNDERED HORSE.—"Cincinnatus," Cincinnati, Ohio. The term foundered is used very indefinitely, and conveys ideas that are apt to be very confused. The disease to which the word should be restricted consists of inflammation of the sensitive portions of the feet—which inflammation may be either recent or long standing. In the early stages of the affection, every effort possible must be made to subdue the inflammation, and to restore the parts to their healthy condition. For this purpose large poultices are to be applied to the feet, and the animal encouraged to lie down. In order to prevent congestion, it is advisable in this early stage to walk the horse without shoes, on soft plowed ground. Where excessive tenderness and inflammation have set in, exercise is out of question. A mild laxative (not purging), should be administered—one-half an ounce of Aloes is most appropriate, followed by injections of water into the rectum if necessary. In very severe cases, bleeding from the cornet may be advisable. If the inflammation persists after two or three weeks, a condition known as chronic Laminitis follows, accompanied by various changes in the internal structure of the hoof. For this long rest at pasture, blistering, and the application of a thin heeled bar-shoe are the appropriate remedies. In the worse cases complete restoration of the foot to its healthy condition cannot be expected. The convexity of the sole must be counteracted by the use of a thick, broad, webbed bar-shoe, and the animal placed in the wettest pasture possible. Shorten the toes and lower the heels if necessary. The animal may be used for slow farm work on soft ground a long time before he is fit for use at a quick pace upon hard roads.

TUMOR ON THE NECK OF OX.—E. J. Burr, Royal, Nebraska. The tumor may be best removed by extirpation, which should be done by a surgeon. It is undoubtedly simple in its nature, and may be removed by the knife without difficulty. If this is not possible, on account of the want of an experienced hand to perform the operation, try the effect of some stimulating ointment, such as the Iodine, which may be procured of any apothecary.

NERVOUS IRRITATION OF SKIN OF HORSE.—Jno. D. Pryon, Windfield, Kansas. The animal is suffering from Neurosis, or nervous irritation of the skin, which shows itself more particularly under the influence of hot weather, and is accompanied by pimples or vesicles, which become broken by rubbing. For treatment a complete change of diet is advisable, which, if in the stable, should be restricted; a change to pasture may be advantageous. Give gentle laxatives, with green food, wash the skin daily with soapsuds moderately strong. If no improvement, after a few weeks of trial, give bicarbonate of soda in the drink, half an ounce per day. The chief objects in the treatment are to remove any offending substances from the intestines, keeping them somewhat relaxed, and to change the animal's entire diet.

A BRIGHT SPOT IN A DINGY STREET.—Business took us, a few days ago, through one of those streets in New York City that one never visits unless from necessity. It is a crowded thoroughfare where more than one half of the shops are beer saloons and gin mills, and the others devoted to junk dealing and small trades. The upper part of the houses are crowded tenements. One of the dingiest of the buildings retained as a relic of former prosperity a narrow iron balcony, running across the whole building, at the windows of the second floor. This balcony was occupied by a box for its whole length, perhaps twelve feet long and about a foot wide and high. The box had been filled with soil, upon which grass seed had been sown, and there were three young trees of the Ailanthus, one in the middle and one at each end, forming, with the fresh green of the grass and the tropical foliage of the Ailanthus, as pretty a piece of "sub-tropical gardening" as can be imagined. This green spot brightened up the street for a long distance, and afforded the eye a refreshing rest, after gazing upon the displays of the second-hand clothing stores. Whoever instituted that window box is a public benefactor, and we thank him for the refreshing glimpse of balcony-gardening he afforded us.



Boston Brown Bread.—Several housekeepers have asked for a recipe for Boston Brown Bread. The term "Boston," is applied in all New England cities to bread baked in conical iron pans. We give the recipe which has long been in use in the family of the writer. Inasmuch as the recipe came from Boston, the bread may be called Boston Brown Bread. At any rate, if there is any better bread than that made by this recipe, we should like to know how to make it: Indian meal, two heaping cupfuls; rye meal, two heaping cupfuls; milk, three cupfuls, scant; soda, one teaspoonful; salt, one teaspoonful; molasses, three-fourths of a cupful. Mix, and steam for five hours.

Self-Opening Gates.—Every few weeks some one, all the way from Maine to Oregon, asks, "which is the best self-opening gate?" Those who manufacture such gates should advertise them. We some years ago lived in a neighborhood where such gates were in frequent use. From our experience there, we would not have such a gate, if it were put up without cost. Those that open by the striking of a wheel of the vehicle against a lever, cannot endure the shock of repeated blows, and soon give out. In winter they are so clogged with snow and ice, as to be useless. But why have a self-opening, or any other gate? A gate is only of use to keep out stray animals. In all but newly settled localities, the law against allowing cattle to run at large, should make gates of any kind a useless expense.

The New Orleans Exhibition.—Though the full title reads, "The World's Industrial and Cotton Centennial Exposition," it will not be so exclusively confined to Cotton and Industrial matters, as generally understood, as its title might suggest. Abundant space is provided, and liberal prizes offered for horticultural and pomological exhibits of all kinds, not only from our own growers, but those of Europe also. Mr. P. J. Berckmans, President of the Georgia Horticultural Society, and the leading pomologist of the Southern States, left for Europe last month, as a special Commissioner to interest European pomologists and horticulturists in the New Orleans Fair. A better selection for this commission could not have been made, and we commend Mr. Berckmans and his object to European cultivators.

Stocks for the Cherry.—J. R. Osborne, Bethany, N. C. Cherries are separated into two classes: those with heart-shaped fruit, the Hearts and Bigarreans, and those with round fruit, the Dukes and Morellos. The Mazzard, which you probably know as the small black cherry, makes the best stock for the Heart and Bigarreau varieties, while the sour red or pie cherry, is used for the round-fruited kinds. To preserve the seeds, allow the fruit to be thoroughly ripened; it is placed in a tub with water, and by a gentle pounding, the pulp is removed and washed off. The stones are then spread on boards to dry; afterwards they are mixed with sand, which is very slightly moist, and kept as cool as possible. It will probably be better, in North Carolina, to plant the stones in the fall, as even in Northern localities, it is difficult to keep them from sprouting before the soil is ready in spring.

How to Keep Eggs.—Eggs may be kept from late summer or autumn well into the winter, or even spring, but it is next to impossible to deceive the dealers, and very few consumers are deceived by them. "Limed eggs" have their regular market quotations throughout the winter, and usually sell at one quarter to one sixth less than fresh ones. They are limed by packing them into barrels or smaller casks, point down, and pouring on them the water from lime slacked with brine, to a thin milky consistency, using just enough to cover the eggs, so that the next layer can be conveniently placed upon these, and then more lime-water added. When the cask is full, the eggs must be covered with a cloth and this spread over thickly with the pasty lime, then, if the water evaporates, or if the pasty lime cakes and cracks, more water must be added. It is essential that the eggs should be perfectly fresh, clean, and sweet when packed, or the whole lot will go wrong. There is probably no better way of keeping eggs for market than this. For family use they may be greased, dipped in hot paraffine wax, scalded, and perhaps preserved in other ways. The lime and salt liquid imparts no flavor, and does not deface the egg, which, when offered for sale, has a slight chalky appearance foreign to and distinguishes it from a fresh laid egg.

Chat with Readers.

Is Sulphur a Good Fertilizer for Fruit Trees? asks *S. Deal*, Seneca Falls, N. Y. Sulphur is of no value in supplying plant food, though it may be of use in destroying and preventing the growth of fungi, and thus benefit the trees by keeping off their enemies.

"Old Subscriber," Basking Ridge, N. J., asks us for reference to a back number, and also where a market can be found for old coins. Had the name been given, we could have referred the writer by letter to September, 1879, and also given the name of a dealer in coins. It is against our rules to advertise coin dealers and others in these columns.

Lime or Ashes with Guano, etc.—*J. C. Norris*, Huntsville Conn. When lime or ashes is mixed with guano, hen manure or other fertilizers containing ammonia, or readily yielding it, there is a loss of a valuable constituent. If the soil needs lime or ashes, sow the other fertilizer first, and when that is well incorporated with the soil, the lime or ashes may be applied without loss.

Removing Varnish.—*M. F. Carlton*, Chicot Co., Ark., asks how to remove varnish without the use of sand paper. Benzine will dissolve varnish readily, but as we are not informed what kind of a surface it is upon, it would be well to make sure that benzine will not injure the rest of the work. In using benzine, be cautious and keep away from fire or flame; the vapor mixed with air will explode.

Crude Petroleum and Kerosene.—*W. F. Brown*, Columbus, O., asks, if coal oil, or kerosene "is not as valuable for preserving fence posts as crude petroleum?"—By no means. Kerosene is a light volatile oil, which in time would completely evaporate from the wood. Crude petroleum, on the other hand, contains the non-volatile and preservative matter, which will remain in the wood.

Chestnuts for Planting.—*J. B. Gowdey*, Dallas Co., Iowa, asks us, "where can I get chestnuts for planting?" Chestnuts for seed should be procured in autumn, at the time they are ripe, mixed with an equal bulk of sand, and kept until spring in a cool place. There will be less danger from freezing than from heating. We have sent you by mail the addresses of several dealers, who may be able to supply chestnuts that have been properly kept for planting.

Lightning Rods.—In a former article upon Lightning Rods it was stated, that the lengths might be joined by welding. Several have written to ask, if round rods can not be united by means of screw couplings in the same manner as gas-pipes are joined. Certainly, a screw coupling will answer; we mentioned welding, as the average country blacksmith can more readily join the rods in this way than in any other.

Pinching Tomato Vines.—*C. H. Tufts*, Wakefield, Mass. If tomato vines are allowed to bear all they will, the frost will arrest their growth with a heavy load of green fruit, from that just set, up to that nearly ripe. Had all the clusters of flowers and young fruit been cut away, except that which could have ripened before frost came, the remaining fruit would have been larger, finer, and probably somewhat earlier, though the gain would have been more in quality than in time of maturity.

Screen for a Carp Pond.—*S. Schwartz*, Wynant, O., has a carp-pond, and would like to know how to prevent the young fish from escaping when water runs out of the funnel-shaped waste-way. We infer that the waste-way is built of wood, and it can be readily made safe by the use of a screen of wire netting, which can be had of any desirable fineness. As floating leaves, sticks, and other rubbish may clog this screen, it will be well to place in front of the netting, and a few inches from it, a screen of wooden slats, to arrest the floating matter before it reaches the wire.

Trouble with Currant Bushes.—*"Samuel Miller,"* Phillipsburg, Pa., sends us stems of a currant bush, which look as if they had been sprinkled with whitewash. These spots are thin white scales, under which, if examined early in the season, will be found minute red eggs. The same scale is not rare upon pear trees, but we do not recollect to have seen it on the currant before. It is known as Harris's Bark Louse. We should try the emulsion of kerosene, mentioned in the March *American Agriculturist*, page 114, applying it freely.

Almonds and Pecan Nuts.—*R. M. Gard*, Moultrie, Fla. The almond can usually be cultivated wherever the peach will grow, and is propagated in the same manner, *i. e.*, choice varieties are budded upon seedling almonds. It is also budded upon the peach and plum. As the Pecan grows abundantly in Texas, in a similar latitude to yours, so far as climate is concerned, it would no doubt flourish in Florida. It is said to be, like other hickories, very slow in coming into bearing from the seed. Trees of both Almonds and the Pecan, may be had at the large nurseries.

Time to Start Cuttings.—*Miss H. Gibson*, Petersburgh, Pa., asks us the proper time to start cuttings of flowers for winter blooming. As the kinds of plants are not mentioned, we can only give a general answer. Plants that grow slowly should have their cuttings made this month; for rapid growers, like verbenas, September will be early enough. The two methods mentioned in an article on "Cuttings from Unripe Wood," will either of them answer for ordinary bedding plants, though the "Saucer Method" will succeed better after the hottest days are over.

A Lot Overrun With Plantain.—In April last (page 154), we made use of the complaint of a subscriber in New Lisbon, N. Y., that he had a ten-acre lot "covered" with Plantain, as a text for an article on weeds. Now, Mr. F. H. Brinker, Medina Co., Ohio, suggests with refereuce to this lot, that seeding it down to Timothy grass, will kill out the Plantain. Otherwise, he suggests making use of the lot as a pasture for a few years. He says that in Ohio, both cows and sheep are fond of the Plantain when it is young and tender, and they keep it so well subdued, that it does not go to seed. Sheep are excellent weed exterminators.

Troubled with Wasps.—*J. R. Francis*, Fall River, Mass., having altered over an old house, is much troubled by wasps, which enter the rooms and are very annoying. Probably a search would discover the wasps' nests, which are sometimes built under the eaves, or in some part of the garret. When the nests are discovered it should not be difficult to destroy them. If the place admits of it, fumigation with sulphur fumes might be tried. Fumigation by burning Insect Powder (Pyrethrum), is said to kill mosquitos, and it would be worth while to give it a trial with the wasps—always avoiding the business end of the insect.

Railroad Horticulture.—The surrounding of the signal houses and other buildings of some of the railroads running out of N.Y. City, are decorated and kept in a manner highly creditable to the workmen, and pleasing to the passengers who pass over the roads. What were formerly waste places, disfigured by rubbish, are now laid out in lawns and grass plots, in which are beds of showy flowers and plants with ornamental foliage. There is room upon most railroads for improvement of the grounds around the stations. Some railroads have this done by contract, while the horticultural adornments seen on others, are due to the good taste and enterprise of the employees.

Squash Bugs.—*"C. H. Blair,"* East Palmyra, N. Y., wishes to know "how to keep the bugs off of squash-vines, especially the Hubbard." By "bugs," we suppose that our correspondent refers to what is known as the Squash-bug, *Anasa* (formerly *Coreus*) *tristis*, that solemn-looking insect, belonging to the true bugs. It is readily recognized by the horrible stench it gives off when disturbed or crushed. The last of the month of June, or early in July, these insects leave the places in which they have hidden themselves during the winter, and seeking the squash-plants, lay their eggs on the under surface of the leaves. The only remedy is, to catch and kill the female insects, and to crush the eggs, always upon the underside of the leaves. These are the best methods of keeping these insects in subjection.

Glass Insulators for Lightning Rods.—We have frequently stated that the use of glass insulators upon lightning rods was a useless expense, because as soon as they are wet by the rain, they cease to insulate. W. E. Godding, Norfolk, Mass., describes a case occurring in his town, which would seem to be an exception to the statement that insulators were useless. A copper rod was fastened to the house by glass insulators, the lowest of which was broken off. The lightning descended the rod, and when it came to the broken insulator, left the rod and entered the house, following the floor timbers, tearing up the floor, and went out in the direction of the well, about twenty feet from the house. This shows nothing as to insulators, but indicates that the rod had not a proper earth termination. The lower end of the rod was in dry soil, and the lightning merely took the shortest road to a good conductor, the water in the well. The lower end of the rod, which is out of sight, is really the most important part of a lightning rod.

Gapes in Chickens and Turkeys.—*J. W. Bailey*, Bridgeport, West Va., sensibly asks, how to prevent as well as to cure gapes. Our domestic animals, especially poultry, would need very little medication were the causes of their diseases generally understood, and preventive measures adopted. Chicks and turkeys are attacked when from four weeks to six months old. The disease shows itself, as its name implies, by continuous gaping; the chicks are dull, and cough and sneeze. When dead, numerous small worms are found upon opening the wind-pipe. Damp quarters, unwholesome food, and especially impure drinking water, are regarded as promoting the disease, if not the cause of it. A small feather has the plume stripped from all but about half an inch from the smaller end of the shaft; this is dipped in spirits of turpentine, and passed into the wind-pipe through an opening to be seen back of the base of the tongue. The feather is turned around once or twice and removed. A share of the worms will come out with the quill, while others will be thrown out by the coughing caused by the turpentine. After the worms have been removed in this manner, the young birds should be kept in a warm coop from the damp earth, and be fed upon warm soft food.

Cabbages and Club-Foot, or Clumping.—*J. E. Overton*, Port Jefferson, N. Y., asks us if we have known cabbages to be raised upon the same ground two years in succession, without "clumping," and if potash salts or plaster would be of any use in preventing the trouble. There are lands on the New Jersey shore, upon which cabbages have been grown for twenty years or more in succession, and no club-root has appeared. Finding this soil to be filled with minute fragments of shells, Mr. Peter Henderson suspected that these acted as a preventive of the cabbage trouble. In order to ascertain if lime in any other form would act in the same manner, he applied bone-dust, at the rate of a ton to the acre, to land that would not bear two successive healthy crops of cabbages. This was done side by side with a plot highly manured with stable manure, and both were planted with cabbages. On the manured portion, the plants were badly injured, while on that to which bone was applied, not an injured plant was noticed. Experiments are needed to ascertain if a much smaller application of bone would not prevent the trouble, and if lime in the form of ground shells may not serve the same purpose.

French Farming.

France is one of the richest agricultural countries of Europe. Its two hundred and four thousand five hundred square miles of area, produce both temperate and sub-tropical crops. The olive, the mulberry, and the vine flourish in the south, and in the north and northwest (the most fertile



THE PROPRIETOR.

part of Europe), the wheat and beet-root are the staple crops. The latter is a most important product, as it is upon it that the sugar supply of the country mainly depends. Beet-root sugar first became known in France when the wars of the first Napoleon closed the Empire to importations from America. Its manufacture is now one of the great industries of the country.

Unlike England, France is a country of small proprietors. The great revolution wrested the vast estates from their hereditary owners, and threw them into the market. They were then broken up and purchased piecemeal, and though many large properties have been gathered together since then, their number is small compared with that of the individual farms. The result of this condition of affairs, is that while in England wealth centres in the manufacturing districts, and the great cities, in France it is generally diffused over the whole country. In England the farmer pays heavy taxes and heavy rent. In France, he pays heavy taxes but no rent. He saves money, and there are few farmers indeed, who are not small capitalists. The extremely frugal habits of the agricultural people of France, aid in bringing about this result. In England, as in America, the farmer, though he may be a careful man, does not stint himself of necessities. He lives well, and he educates his children. In France matters are different.

Hard work and frugal fare are the rule with the French countryman. The "proprietor," as he is called, the master of the great farm, lording it over herds of fat cattle and fleecy sheep, does not pamper his body. On market days you see him at the village inn, admired and envied. He wears, as a holiday outfit, a clean blouse over his white shirt, with its tall collar, around which a satin tie is twisted; his pantaloons are of shiny broadcloth, his shoes of strong, fine leather, without a patch, and he carries a great silver-headed cane. He takes double as many lumps of sugar in his coffee as another man, talks in a blustering voice, and is universally respected and feared. These proprietors form a very rich and powerful class, but they are often ignorant to an incredible degree. They grow rich simply because the people beneath them are more ignorant than themselves.

To the misery of the poor in the French agricultural districts, no mere description can do justice. Like the condition of the English agricultural laborer, their's is one of black, hopeless privation. There are sections in which meat is an unknown article of diet to them. At best they get a scrap of it, and that of the cheapest kind, once a week. Bread of the poorest quality, and potatoes, form their staples of diet. The bread is generally baked in batches to last several weeks, and it is eaten even when bitter with mould. In the mountain districts of France, the agricultural poor supply the place of potatoes with a fungus picked in the woods, which is of a kind too coarse for market.

Thousands of the small farmers, however, live from choice, quite as poorly as their laborers. The miserly instinct is a characteristic of some of the people. They save at the expense of their bodies and their minds. All that they raise in a condition fit to eat is sold; the rest they live on. The agricultural districts of France are very wealthy in money hoarded away by people whom one would not suspect of being anything but beggars, if they were encountered on the high-road. The holiday suit often lasts the farmer a lifetime. He only wears it on occasions of show, and is not ashamed of his working clothes. The types of country life in France are probably distinct from those of any other country in the world. In some sections, the men and women dress according to their employments, so that you can distinguish between the field and the stable laborer, the dairy women, and the house servant at sight.

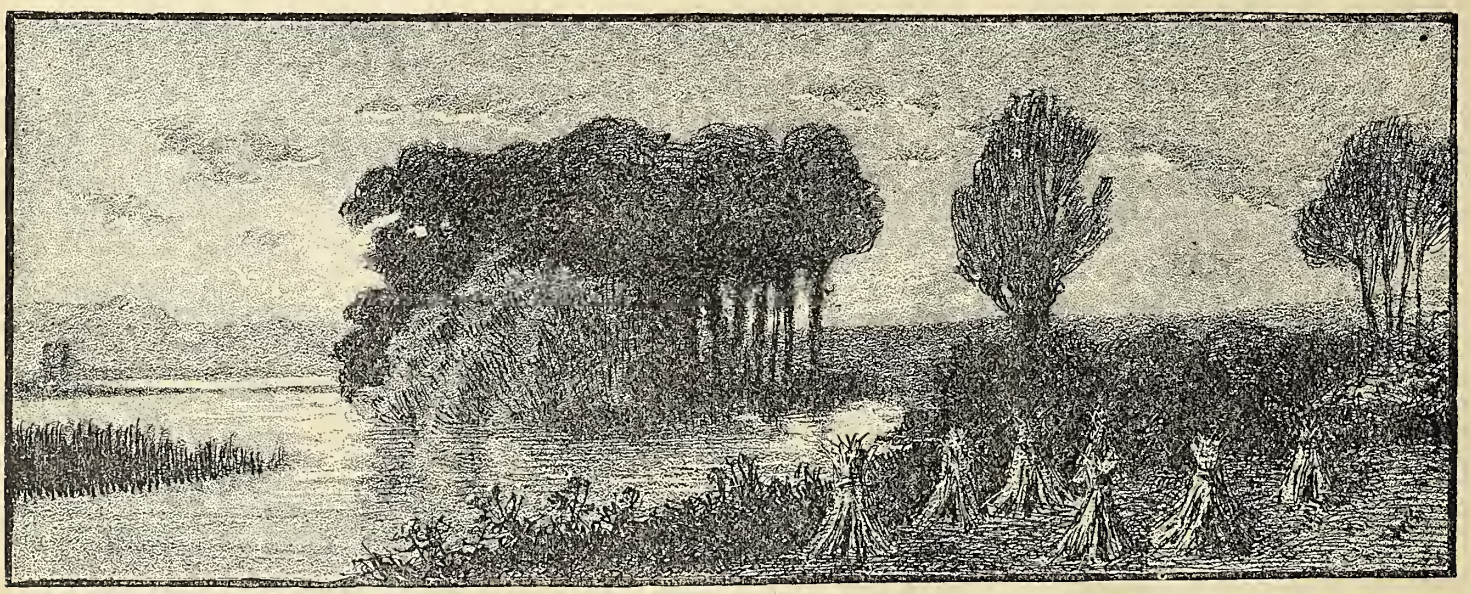
The various implements now in use on the finest farms in France, would be considered old-fashioned across the channel. In the best sections, the plow is yet little better than that which the Egyptian uses to scratch the soil. On very many farms, the spade and hoe are made to do duty for the plow. With small farms and cheap labor, such a method is possible, but it would make France a new country for the farmer, if it was plowed up from end to end like one of our great farms. American tools find little favor with the French farmer as yet. There are a few in use, and they are apparently regarded as curiosities. We once passed a group of fifty people gathered at a roadside in Normandy, to watch the working of an American plow.



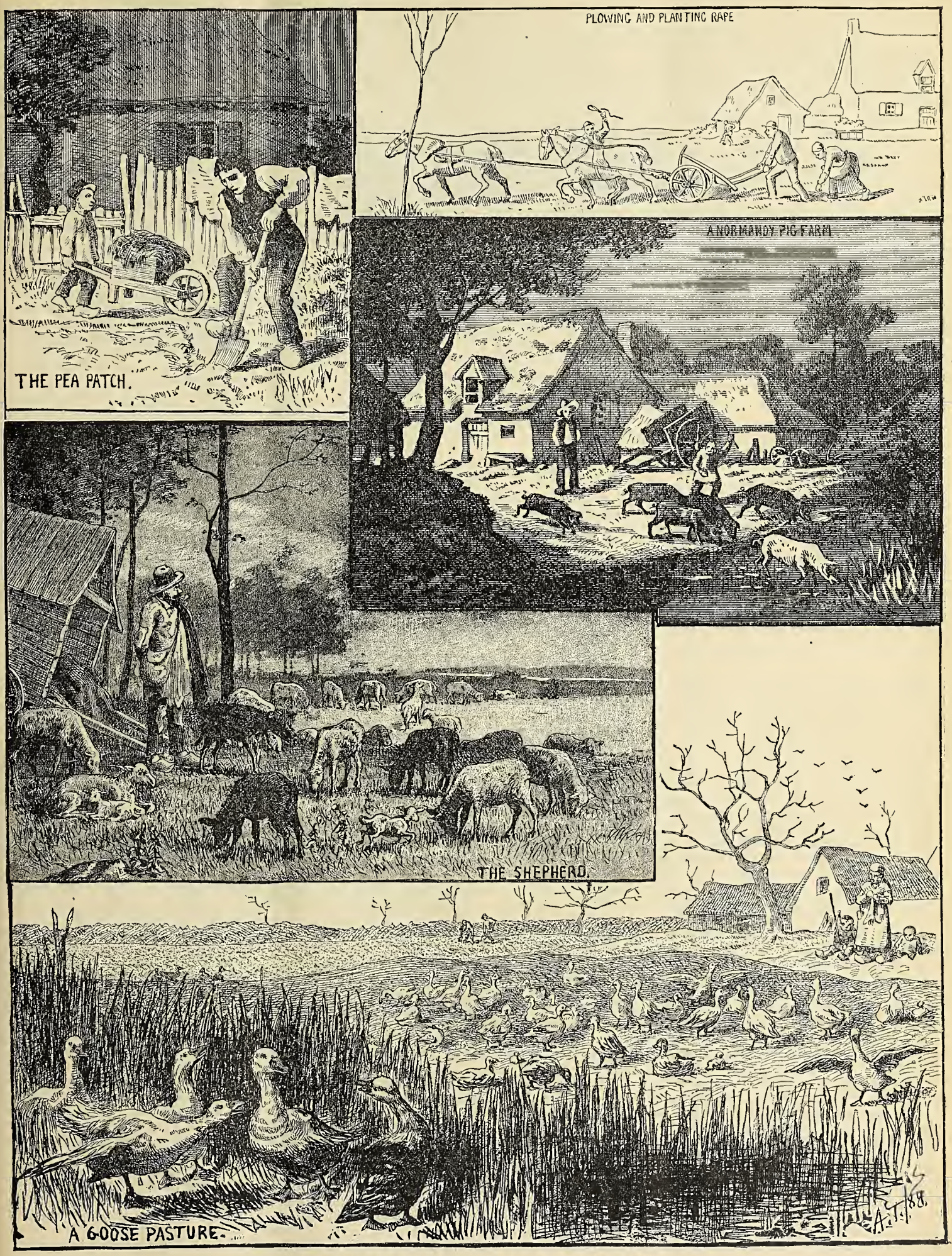
A COMPLAINT TO THE LANDLORD.

French farmers are very litigious. They go to law at the slightest pretext—for a bundle of faggots, or a few bunches of grapes. This has doubtless given existence to the *garde champetre*, a sort of rural policeman, whose duty it is to keep guard over the fields, and watch for tresspassers, and who is constautly called upon to render official service to the farmers. Politically the farmers form a powerful and important class, and they are canvassed at every election by rival agents from the cities. As a rule, they are conservative. All they want of a government, is for it to give them peace and a good market. Given these, they are satisfied to be ruled as the government chooses.

In France, as in England, the first lessons of childhood are labor. The babies are made scarecrows of, and set to watching the geese; children of larger growth drive the lean swine, which look like dogs in their meagreness, and drudge in the barn-yards and the fields. The writer once had a boy pointed out to him as the brightest lad in a little French village. When asked in what his brightness consisted, the proud parent pointed out a garden patch next to the house, and said: "He raises that, filled every inch, with peas every year."



EVENING ON THE MARNE.—*Drawn and Engraved for the American Agriculturist.*



FARM LIFE IN FRANCE.

Drawn and Engraved for the American Agriculturist.

Sheep Raising in the Northwest.

There is no scope in the territories of Dakota, Montana, Wyoming, and Idaho, for the profitable keeping of very large flocks of sheep as are kept in New Mexico and Southern California, or in Western Kansas and Texas. Five thousand head is as many as it is wise to keep in a single flock, but at the same time there is nothing to prevent a man who has successfully built up a flock of this number to divide it, if he can find a suitable location within convenient distance, and where he can give his personal attention and superintendence at proper times, and so manage two flocks of this size. Experience has proved the wisdom of making a sure thing of one manageable flock, rather than to try to keep two and fail with both. The old proverb "between two stools one comes to the ground," is applicable to this business. The general average of the flocks through this region is from two thousand to six thousand, and the lower limit is far more frequent than the higher one. A thousand sheep is the usual starting point, and is a safe one. To begin with such a flock, a capital of five thousand dollars should be in hand. If one has more, it would be well to loan the remainder at good interest and risk only this amount. The expenditures will be as follows:

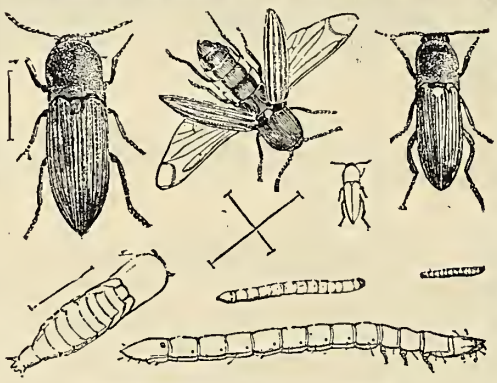
COST OF STARTING A RANCH.—One thousand sheep, at $2, $2,000; twenty pure Merino rams, $500; sheds and buildings, $500; expenses, first year, for two herders and other help, $1,000; horses, wagon, etc., $500; reserve fund $500. The probable income and increase is three thousand five hundred pounds of wool, $700; and seven hundred lambs. The fleeces of the improved lambs will be worth fifty per cent more than those of the ewes, including the increase in weight and the higher market value, and the second year, the wool will at least pay all expenses, as no more labor for herding will be required for two thousand than for one thousand sheep. The cost of bedding and feeding a small flock will amount to about seventy cents per head per year; for flocks of two thousand and over, the cost will be reduced to fifty cents or even less under favorable circumstances, and when the owner takes his share of the work. The Colorado and Oregon sheep require less feeding in the winter than Iowa sheep, as they are hardier and better "rustlers," that is, better able to withstand the storms of winter.

In Wyoming the sheep are generally Mexicans crossed with Merino or Cotswolds and brought from Colorado. In Idaho the flocks are usually brought across from Oregon, and are much like the Mexican, small and light, but strong and hardy. In Montana the sheep are of better quality, having more Merino blood in them, and many well-bred grades from Michigan and Minnesota are brought out on the railroad. Powder River; the Judith basin on Grave-yard creek; the Gallatin Valley around and south of Bozeman, and the Missouri Valley and its tributary valleys past Helena and down to Fort Benton, are especially desirable localities for sheep in Montana. Further west is the mountain region in which good localities may be found in abundance. Last winter, snow first covered the ground about February 1st, and remained until the 20th, when the warm south wind, known as the "chinook," melted it and left the ground bare in a day. The losses of old sheep are scarcely worth counting; among the young ones, two per cent will cover all, and when the best care is exercised, the losses by death may not exceed five in a thousand, and those from accidents. The most frequent losses are caused by a native grass which bears exceedingly sharp awns or beards, and called popularly "needle grass." Botanically it is *Stipa spartea*. The long grain, or seed, of this grass is inclosed in a firm leathery chaff, which, at its upper end, bears a slender twisted "awn," or bristle, five or six inches long. These awns twist and untwist, as the weather is dry or wet, and the plant, on this account, is called "weather grass." These grains, with the long awn at one end, and the hard, sharp point at the other, drop from the plant very readily, and catch in the wool. The lower end of the chaff is furnished with a hard and very sharp point (botanically called *callus*), which readily penetrates the flesh. Being furnished with stiff hairs, all pointing in one direction, this callus, and the attached chaff and included grain, work into the flesh with every motion of the animal. The sharp point penetrates the skin and works into the flesh and even into the intestines. They also are found in the mouth, or if swallowed penetrate the stomach, and cause death. On this account it is necessary to examine the sheep frequently and extract the "needles" from the wool and skin. The remedy, or rather the method of prevention, used by shepherds, is to make a fire break; which is a strip of plowed land around a portion of the pasture, and not permitting the fire to run until June when, the needle grass having started into growth, the fire is started and the dead grass burned off; along with which the young needle grass is killed for that year.

Another frequent trouble through most of this region is from the dust, which is alkaline and irritates the lungs and nasal passages, causing a cough and discharge from the nostrils. This of course is a natural consequence of the character of the soil, and cannot be overcome excepting by avoiding pastures of this kind, or by providing other feed for the flocks at the seasons when the trouble mostly prevails, which is in late fall and winter.

Wire Worms—True and False.

When a correspondent writes that the "wire-worms" are injuring his crops, and asks how he shall prevent them, we are not certain as to what insect he refers. There are several very unlike insects, popularly known as wire-worms. The true wire-worms have but six legs, while the millipedes



CHICK BEETLES AND WIRE WORMS.

or false wire-worms, have very many. The true wire-worms are the larvæ or grubs of a beetle, and in time appear as winged insects, while the false wire-worms have the same general appearance in their larval and perfect state. The perfect insect of the wire-worms is a beetle, of which there are numerous species, varying greatly in size, but of the general form shown in the engraving. When laid upon their backs, these beetles are able, by means of a sudden jerk or spring, to throw themselves up for several inches into the air, and usually alight feet downwards. On account of this peculiarity they are known as snap-beetles, spring-bugs, skip-jacks, etc. They are usually brownish in color, though some are covered with short, gray hairs, and appear ash-colored. The eggs are laid near the roots of a plant, either upon the surface of the ground or just below it, and the young grub feeds upon various small roots, and sometimes enter the stems in search of food. The worms live for a long time in the ground, some of them it is said, as many as five years. As they travel through the soil, feeding upon the young roots, they do much injury. When they have attained their full size, the worms go deeper into the soil, form an earthen case, from which, in a few weeks, the perfect beetle escapes, and makes its way to the surface. As a general thing there is not much to be hoped from direct applications to destroy the wire-worms. In England, the use of soot, salt, guano, and other fertilizers applied for the benefit of the crops, have been thought to diminish the number of wire-worms. In gardens, the worms may be trapped by means of pieces of carrot or potatoes; each piece is fixed to a stick a few inches long, and buried just below the surface of the soil. The sticks, which project above the surface, allow the pieces to be readily found; they are taken up every other day, and the worms killed. Keeping land in fallow is recommended, to starve out the worms, and the burning of all rubbish may destroy some. Probably the greatest help will be from the small birds, which will destroy the beetles in great numbers.

Shade Trees on the Farm.

A few well-formed trees along the fence rows, and even scattered here and there in the open fields, add greatly to the appearance and value of a farm. Cattle, sheep, and other farm animals, suffer greatly from the hot sun when confined in a shadeless pasture in midsummer. They will seek the slight protection from the broiling sun a fence may afford, or stand huddled together for hours, with their heads shaded by each other, in a most unhealthful manner. Animals thus exposed do not give the best returns to their owners, and for this reason, if not for comfort's sake, they should be provided with shade. Some farmers object to trees in the pasture, because their shade is too inviting, and keeps the live-stock from feeding. Farm animals need not graze all the time, and with good pasturage, can get all the grass they need in the cool portions of the day, between which they should have refreshing shade for chewing the cud of contentment. Men are not the only creatures that may be sun-struck; cows unduly exposed to heat, frequently become sick, quickly fall off in milk, and may require weeks of expensive nursing to bring them back to good health. Trees are an obstruction to the cultivation of a field, and occupy the soil for several feet around them, to the exclusion of grain or other crops, and therefore it is best to plant most of the trees along the line of boundary fences. The tired laborer is thankful for a few minutes of shade and rest, and doubtless will do more work by taking an occasional "breathing spell" under a tree. A tree in midfield may be a chestnut or hickory, and make good returns for the space it occupies in nuts, as well as refreshing shade. In many fields there is a low place with a spring or a small running stream, and is well-fitted for a group of trees. In short, any part of a field not suited to cultivation, may profitably grow a few trees, thus affording a retreat for the live-stock from the midday sun, and driving storms. If the pasture has no shade trees, it will pay to provide a temporary shelter. Four strong posts with forks at the top, may support two poles; across these lay smaller poles for rafters. The top may be covered with straw, swale hay, or, if more convenient, brush may be cut and laid upon the skeleton roof.

The Blackberry in Summer.

A blackberry bush, left to itself, becomes a straggling nuisance, catching the clothing, and being in the way generally. The novice should bear in mind that the bush which grows this summer will bear fruit next year, while the bush which has given fruit this season, is of no further use, and is to be cut away. The bush to give fruit next year should be formed this year. The blackberry produces suckers abundantly; only those needed to form bushes for next year's fruiting should be allowed to grow; the rest are to be cut up as if they were weeds. When a bush reaches the light of four, or at most five feet, stop it; that is, break off its growing end. This will cause side shoots to start along the stem, and when these are eighteen inches long for the lower ones, and a foot long near the top, stop these also, by pinching off the ends. A blackberry thus treated will be a neat, compact bush, and will not only produce finer fruit, than if left to itself, but can be approached without fear of tearing the clothing and scratching the skin.

An $800 Barn.

R. L. HARRISON.

The barn, shown in figures 1 to 7, is placed on sloping ground, thus saving much excavation, and giving an easy entrance to the cellar. This brings the rear door of the granary just high enough for passing out bags of grain, etc., to a wagon. All brick walls are twelve inches thick, except the two parallel walls, which are nine inches. The front wall is built two feet below the sills, and one and one-half foot below the surface of the ground. The cellar walls are seven feet below the sills, and one foot below the surface in the rear. All studs, joists, and rafters, are two feet from centre to centre; the sills are framed together, and the studs are mortised into sills at both top and bottom. The corner and door-posts are four by six inches, and the former well braced with same sized timbers. All floors, except the stable, are dressed tongued and grooved plank; that in the feed room being an inch and a quarter thick, and the balance seven-eighths inch thick. The latter is also used for all doors and windows. In figure 1, the centre doors are hung at the top with iron rollers and rails, sliding back on the inside. At *a*, *a*, figure 4, are foundations for pillars, used to support the floor above. The small door *d*, in figure 5, is used for ordinary passage from feed room to the granary, but the whole partition in rear of feed room, *a*, *b*, is hung on hinges (see figure 7, *s*, *s*,), and when necessary may be hooked up to the joists above. This is very convenient in threshing, the straw passing out at the rear door. The feed room is used for threshing, being wide enough for a two-horse tread-power and separator, or a sweep-power or engine may be placed in the front yard. The room at the side of the granary, containing bins, is ceiled on all sides with wide, dressed, tongued and grooved plank, and all corners protected with twelve inch strips of tin. This, with a close-fitting, self-closing door at *k*, makes a rat and mouse-proof place for storing grain, etc. The bins hold about one thousand bushels. The stables have slightly sloping floors of two-inch plank. Wagons drive into the feed room for unloading hay, etc. A hay-fork with railway is used, shown at *h*, figure 7. Hay is hoisted through the uncovered space *d*, *e*, *f*, *g*, figure 6, and with the hay-fork is carried back where wanted. The hay can easily be thrown into the feed room. The mow holds thirty to forty tons. The rafters are supported by four by four uprights, placed ten feet apart, and extending from the lower floor to a cap-board let into the rafters.

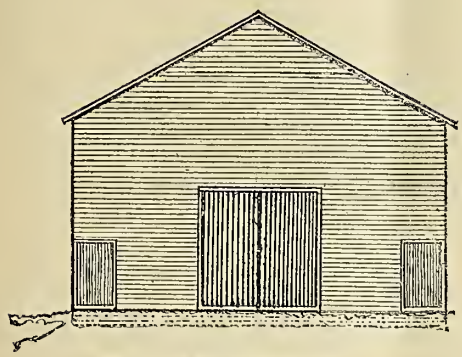


Fig. 1.—FRONT ELEVATION.

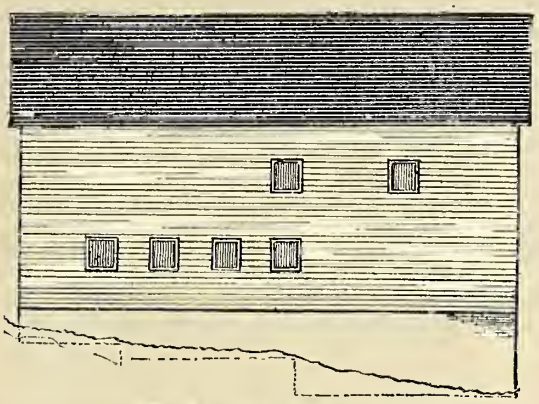


Fig. 2.—SIDE ELEVATION.

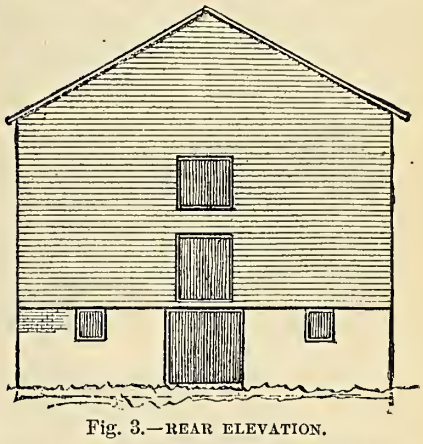


Fig. 3.—REAR ELEVATION.

Estimates for Barn, 36 ft. by 48 ft., 18 ft. Studs.

6	pieces,	6	by 10	inches,	16	feet long	for sills.....
6	"	6	by 10	"	18	" "	"
6	"	4	by 6	"	16	" "	" top sills...
4	"	4	by 6	"	18	" "	" " ...
10	"	4	by 6	"	18	" "	" corner posts and studs.....
8	pieces,	4	by 6	inches,	16	feet long	for braces....
60	"	3	by 4	"	18	" "	" studding..
50	"	3	by 4	"	16	" "	" ...
10	"	4	by 4	"	24	" "	" uprights and support rafters.....
50	pieces,	3	by 4	inches,	22	feet long	for rafters....
17	"	2½	by 10	"	18	" "	" joists over cellar.....
14	pieces,	2½	by 10	inches,	12	feet long	for joists under feed room.....
72	pieces,	2½	by 8	inches,	12	feet long	for joists.....
4	"	2½	by 8	"	36	" "	" tie beams..

The cost may be reduced by using timber less good, especially flooring and upright plank strips, instead of weather boarding or siding, and by using nine-inch brick walls and pillars under the front part where there is no cellar. In this way the cost might be reduced to six hundred or six hundred and fifty dollars. This barn has been in use several years, and has proved itself most convenient and comfortable to both man and beast. Being well made, it has needed no repairs.

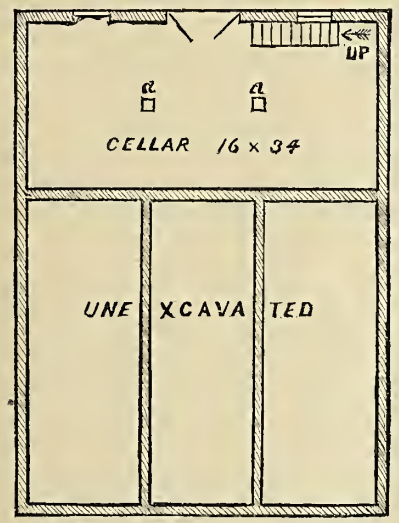


Fig. 4.—PLAN OF CELLAR.

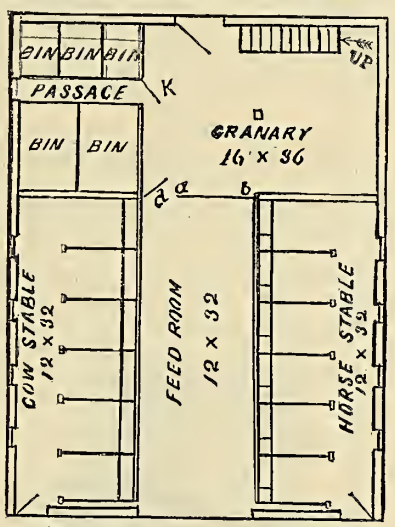


Fig. 5.—PLAN OF FIRST STORY.

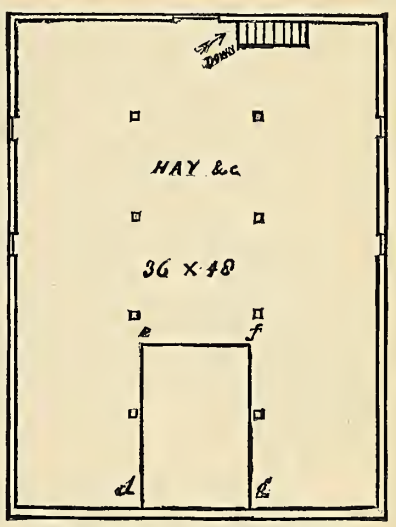


Fig. 6.—PLAN OF SECOND STORY.

	Total, 8000 ft. framing, @ $15.	$120.00
4000	feet 7 inch weather boards, @ $15.	60.00
4060	" tongued and grooved dressed flooring @ $22...	88.00
2000	" 1 inch boards for shelving, @ $12.50.....	25.00
1000	" 1 " " (good) for stalls, troughs, &c., @ $15.....	15.00
2000	feet 2 inch boards for stable doors, @ $12.50.....	25.00
7000	" 6 " wide cypress shingles, @ $10.....	70.00

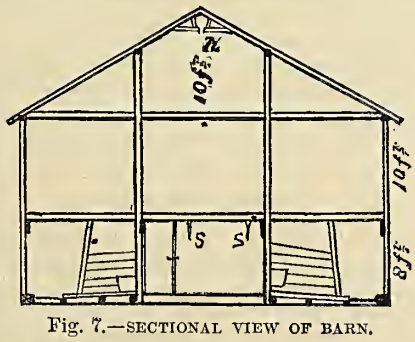


Fig. 7.—SECTIONAL VIEW OF BARN.

Excavation for cellar and walls.	20.00
23,000 bricks laid, @ $10.	230.00
Carpenter's work.	125.00
Locks, hinges, nails, tin, &c., say.	22.00
Total cost.	$800.00

Hungarian for Hay or Green Fodder.

A quick-growing plant is required for a second crop sown on land after oats, or early potatoes have been harvested. Hungarian grass is excellent for this purpose, and with a rich and mellow soil will be ready to cut in mid-summer, or soon after. If the conditions are most favorable, a heavy crop may be obtained in six weeks from sowing. Prepare the soil as for oats, wheat, or other grains, and sow one bushel of seed per acre. It may be sown broadcast and harrowed in lightly. The Hungarian fodder has obtained a bad reputation in some localities, without deserving it, simply because the cutting was delayed too long. The crop should be harvested as soon as the head is well formed, and before the barbed awns become hard and dry. The fully ripened bristles irritate the stomachs and intestines of animals, especially those of horses, and have sometimes done injury.

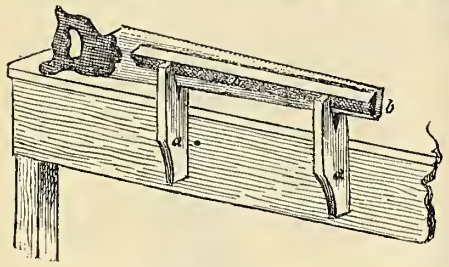
If the crop is grown to help fill the hay-mow, it should be cut and cured in the same manner as Timothy or Red Top, when it makes a good hay. Hungarian grass is especially recommended as a late crop to be fed green, when the pastures are short and dry from close feeding and summer drouth. For this purpose it may be sown in strips weekly, from early June to the middle of July. By growing a few acres of this late crop after an early one, a farmer is able to carry an increased number of farm animals and keep them in good order. Bear in mind, that the conditions of success are a rich, deep, and mellow earth, and on

well worn soil this means a plenty of quick-acting manure, applied before the grass seed is sown.

There are various sorts of Millets, which are closely related to the Hungarian, and like it are good for a second crop for green or dry fodder.

A Saw Holder.

A device for holding a saw while being filed is shown in the engraving. It consists of two upright pieces of wood *a*, cut V-shaped at the top and securely fastened to an out-of-the-way part of the



A HOLDER FOR A SAW.

work-bench or other place. The saw is set between two long wedges *b*, which are pushed down and firmly hold the saw. A saw cannot be well filed unless it is secured from movements of all kinds, and this simple method will accomplish the desired end at very little expense.

Summer Poultry Roosts.

The presence of a pair of fine cedar trees in our poultry yard, accidentally led us into the belief that poultry fares much better if allowed to roost out of doors at night in summer, instead of being confined in hot, stifling, and often ill-ventilated, and filthy houses. Our poultry manifested a disposition to roost in the cedars in summer. Some of the limbs of the trees were low, drooping nearly to the ground, so that the fowls, even large and heavy Brahmas, found no difficulty in getting up among the branches. They were out of the reach of the weasel and fox, and being so completely hidden from view by the foliage, it was not likely that any prowling owl, or passing biped inclined on theft would ever discover them in the seclusion.

The result exceeded our anticipations. Not only did our poultry lay better, and more regularly than ever before, but were healthier, their coat of feathers looked brighter and livelier, and they kept in better flesh than ever before at the same season. Close houses are a necessity in winter, but in summer it is doubtless best to give fowls much more liberty, and all the fresh, pure air at night that they need.

Pulling Stumps.

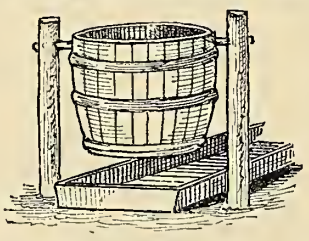
Stumps are far more easily extracted after soaking rains have left the ground loose and yielding, than after the packing and baking of a season of drouth. For small stumps, especially on ground too wet and soft to admit the use of teams, a simple and effective arrangement may be used. A strong axle, say six inches square, is fitted to any stout pair of wheels, as those of a truck, to which a triangular lever is firmly bolted. It projects sixteen inches behind and sixteen feet in front, and is made of tough hard-wood, the pieces six inches square. To the end piece, which is mortised and securely bolted to the others, a chain with two stout hasps is attached. In using it, a broad plank is placed under each wheel to prevent sinking into the earth, and the wheels are blocked. The hooks are grappled into a root, and when raised as far as possible by depressing the lever it is blocked and a new hitch taken lower down. Two men can move the implement from stump to stump. The leverage would be nearly twelve to one, giving three thousand six hundred pounds power if the men weighed one hundred and fifty pounds each, and could both put their weight upon the extreme end of the lever—a power that would start small stumps.

The Turnip Crop.

Ruta Bagas are the most valuable of all turnips, and though we have known a good crop to be made not far from New York City, from seed sown as late as the middle of this month, it is better to sow in June. If from any cause one has omitted sowing turnips until now, he can either risk a late sowing of Ruta Bagas, or sow those which, like the Aberdeen, will mature in a shorter time. As the chances, in a good season, are in favor of making a fair crop of Ruta Bagas, if sown early this month, it will be good management to sow both these and the intermediate kinds, like the Aberdeen. The crop may be greatly hastened by a thorough preparation of the soil. The best cultivators sow on manured ridges. The land is thrown up into ridges thirty inches apart, the manure, the finer the better, is placed in the furrows, and then, using a double mould-board plow, the ridges are split and the soil thrown upon the manure, making new ridges over it. The seed is drilled in upon these ridges, using two pounds to the acre. If the black-fly, or beetle, is abundant, use more seed. When the plants are "in the rough," that is, have made leaves beyond the seed-leaves, they should be hoed and thinned. The usual method is to cut across the rows with a sharp hoe, leaving a bunch of plants at every ten or twelve inches, and then go over again and remove all but the strongest plant. After the thinning, the spaces between the rows must be kept clear of weeds by the use of the cultivator, aided by the hand-hoe near the plants. The varieties of Ruta Baga are numerous, and other things being equal, those the form of which is most nearly globular are to be preferred. Those who grow turnips largely, raise their own seed, and thus secure a strain suited to their land. The Aberdeen and Yellowstone may be sown any time up to August 1st; they are excellent for feeding and for the table, but do not keep so well as the Ruta Bagas. In preparing the land for turnips, a dressing of three hundred pounds to the acre of a good superphosphate, will be a profitable application. The soil must be rich and mellow for turnips.

A Reversible Watering Trough.

Mr. I. E. Charles, Maple Grove, Ind., sends us a sketch and description of a watering trough. Saw in two a strong barrel or cask, as a coal oil barrel, about the middle, and bore a hole on opposite sides near the top with a two-inch auger. Set two posts of scantling or round timber in the earth,



TUB WATERING TROUGH.

boring holes in the top to correspond with those in the half barrel. Strong wooden pins, oak or hickory, support the trough, as shown in the engraving. The trough can be inverted to throw out any water after a horse or cow has drank. It may be set near a pump with a trench below to carry off the waste water. Such a barrel trough is especially convenient in winter when otherwise the trough would get filled with snow and ice.

Raising Chickens.

Do not be in a hurry to invest in incubators, if you are a farmer, and have anything else to do besides looking after the poultry yard. The wooden incubators are well enough for men who have plenty of money, and make the raising of eggs and chickens a specialty. A good many things about incubators are not yet proved, and a farmer who has his bread to earn, can afford to wait a little longer, and use the original method for hatching and raising chickens. The hen is good for a dozen eggs, and, if she be left to her own selection of nest, is pretty sure to hatch them, if they are fertilized. You may protect her against vermin, but she covets privacy, and desires to be left alone. When her brood is off, she needs a little help, a coop for shelter, and regular feeding with a mixed diet of animal and vegetable food, and water or milk to drink—the latter if you can get it. Nothing is better than milk for the fowls. The young chicks will help, rather than hinder in the garden, until they are a month or six weeks old. They will destroy a multitude of insects, and thrive on them. The early hatched chickens are best for layers, but late summer is quite as good for broilers. They never come amiss at any time on the farm.

Among the Farmers.—New Series, No. 3.

BY ONE OF THEM.

I was in Central Vermont last spring, and noticed many fields where Indian corn would soon be waving its broad leaves, upon which the manure had been hauled out last autumn, and left in small heaps. At first I thought that the intention of the farmers must have been to spread it and plow it under at once, and so it may have been, when winter came on, and stopped all such work. But there were so many fields in this condition, that I concluded it was a common practice to leave the manure out all winter, and plow it in in the spring. It would not do at all in New Jersey, and is wasteful anywhere. When frozen solid there is not much loss, and lying unprotected a little while in autumn, and six weeks in the spring, the loss is not very serious, but it certainly is better to have it spread uniformly over the ground, where it will not wash, or to place it in large heaps where it will go on ripening for most of the winter, even if it should be under the snow, and the outside temperature be twenty below zero. No doubt the reason for this practice of getting out manure in the fall, is because the winters are so long, and the northern farmers cannot haul out on the snow as we can. They have two to four feet of snow, and this, of course, confines travel to the beaten paths. With a foot of snow, settled to four inches by a rain or a few warm days, and then frozen solid, we can haul manure anywhere, and do many other things.

Manure Spreaders.

With one Vermont farmer the necessity for getting ready for early plowing, no doubt suggested the admirable manure spreader now in universal use among the gentlemen farmers (of whom I wrote in my last article), and by some other enterprising and reading men. It is amazing how slow such a great labor-saving, and time-saving, implement is in coming into general use by those who would be most benefited by it. I presume there are hundreds of readers of the *American Agriculturist*, who have never even heard of it. This manure spreader consists of a cart body, which may be set at an inclination to the rear, where there is a very simple arrangement in the place of the back-board, operated by the wheels automatically. This implement spreads the manure over a space as wide as the cart track, or a little wider, and much more uniformly than it could be done by hand, and as rapidly as the team can walk. Two or three neighbors, each owning a manure spreader, sometimes combine, and all meet at one farm, and so manure the corn land in one day perhaps. Thus the man whose land is ready first does not have to wait long before his plows are running, while, quite likely, the others will have the same advantage, as soon as their land is dry enough to plow.

House and Barn Connected.

I had entirely forgotten a noticeable feature of Vermont farming—for it is years since I was in the Green Mountain State. It is this: Almost all the barns are built contiguous to the houses; in many cases the barn is really an "L" to the house. It was easy to see the reason for this, or at least imagine it. I thought of a snow storm among these hills, and of the comfort it must be, when the snow is

piled up as high as the tops of the windows, and there is no getting about, for the farmer to be able to care for his cattle, and do his milking and "chores" without digging through an eighth of a mile or less of drifted snow, or tunneling through a drift before he could even get sight of his barn. In this part of the country I am sure we put our houses and barns too far apart for convenience in winter, and yet they are safer in case of fire. Besides, our house wells are quite near enough to the barnyards. Up there among the hills, the water comes down in wooden pipes from some mountain spring, so the nearness to the barnyard is not of so much consequence.

Pure Drinking Water.

This matter of pure water to drink, is vital, *vital*, VITAL to the well-being of farmers. It may be all very well for the good of the race, for the puny, delicate, "peaked" children to die, but these are the ones that the mothers, at least, love best, and there is a vast deal of rending of hearts over the sickness and death of the delicate ones, young or old, which might at least be postponed for many years, if they and we had pure water to drink. Wells near barnyards, or within two or three hundred feet of them, sometimes contain the germs of disease and death. The old fashioned privy vault, fifty times more dangerous, is usually nearer the house and the well, and contrived, as if by the "arch-enemy," as an unfailing source of malarial poison, of diphtheria, typhus and typhoid fevers, and the evils that follow in their train. There ought to be State laws forbidding the existence of the privy vaults, or even of cess-pools, except, perhaps, cemented cisterns, through which a regular flow of water is maintained.

No system was ever devised equal to the Mosaic, (Deut. xxiii ; 12, 13 and 14,) but that is particularly adapted to a nomadic people, although I have met with it in Louisiana and Kentucky, and know it is the rule in Texas, where the abomination alluded to has never existed, except to a very limited degree.

Milch Cows.

There has been a good deal of discussion lately in some newspapers, as to whether it is best to raise or to buy milch cows. This is a question like many others, "with two sides to it." When "once upon a time," some one said that everything had two sides, his opponent thought he gave him a "poser" when he asked "on which side of a pitcher is the handle?" It did not take long to find out that it was on the outside, and so in this matter of raising cows, there is an inside and an outside. In Cattaraugus, and other New York counties, the farmers long ago were wise enough to procure full-blooded Shorthorn bulls, and these have given rise to a style of cows which is very prevalent there, and is just what our milk producers want. They can be raised there for about twenty dollars a head, cost the buyer thirty dollars, and so the raiser has a fair profit. No more is asked for a four or five-year-old cow, which has given two calves, and probably four thousand quarts of milk. The raiser can well afford to sell rather than winter some of his cows, and where milk is worth an average of three cents a quart the year round, farmers can not afford to raise calves dropped at any time before the middle of May. Calves may indeed be raised without milk, but they are not the ones that make the best cows, and if raised upon milk, they will cost the farmer, to say the least, a great deal more than anybody will give him for them. The danger of importing disease is very slight. I would never advise a man to buy cows out of a travelling herd, but there are in every dairy section, enterprising men, usually first class farmers, who go into the cow-raising counties, and buy four and five-year-old "springers" (cows soon due to calve). They buy of men whom they know, pick up two or three car-loads, and arrange to have them shipped, one car-load at a time, as ordered. Often these dealers know the cows, and have watched them as they grew, as two, three, and four-year-olds. They are healthy, large milkers, and seldom go wrong, and are sold at prices decidedly lower than the milk-producer could have raised them for himself.

If a milk-farmer has a grand twenty or thirty-quart cow, and wants to raise her heifer calf, and get one to be really proud of, let him send her to a first rate Jersey or Guernsey bull, so that she will come in in May. Then arrange to raise the calf on skim milk, and to do well by it, and he will probably get a cow giving sixteen to twenty quarts of very rich milk. The drifting herds I speak of, are usually picked up by an inferior class of dealers, in places not far removed from the milk section. They attend auction sales, and get any kind of "springers," and cows with young calves, they can buy. They move slowly through the milk region, towards the cities, where they are sure of some sort of a market, and they constantly trade and barter along the route. Of course there is great danger of getting disease in one's herd in buying such cows, and it is a blessing that these drifting herds generally head east, where they soon become beef, and that now-a-days there are comparatively few of them.

Keeping Hams through the Summer.

It is somewhat difficult to guard hams from flies through the summer, however well cured and smoked. The smoke-house, if well made, preserves them, and this is the more common place of deposit with those who smoke their own hams. But multitudes have on hand a season's supply of hams and shoulders. They keep much better in a dry atmosphere. If sugar-cured hams are purchased, the cloth that covers them is a sufficient protection against insects. If the hams are home-cured, they can be covered with cloth at small expense, or even with a bag of thick paper tied tight at the top, around the string by which they are suspended. If hung in a dry, cool place, they will not mould, and will always be on hand for the staple of a hearty meal, in any emergency of the family. Farmers generally make their own meat, and cure it, and, with a good recipe for curing, secure better hams than they can purchase, and at less cost. It pays to keep the larder well stocked with the best.

Preparing Sumach for Market.

Certain inquiries seem to be perennial; a crop of them coming each year with the return of summer, probably from new subscribers who have not seen former volumes. Sumach is one of these perennial subjects. The first inquiry this season came from W. P. Gould, Clay Co., W. Va., and in answering him, we reply to several others. The two species most commonly gathered, are the Smooth, or Common Sumach (*Rhus glabra*), and the Staghorn Sumach (*R. typhina*). The Mountain Sumach (*R. copallina*) is equally valuable. The first two are found nearly all over the older States, while the other is somewhat less common. The tops of the bushes and ends of the branches are broken off and laid upon roofs, on hard bare places upon the ground, under sheds, etc., where they remain until dry. It is then threshed with sticks, the twigs and stalks picked out, and the leaves packed in sacks, bed-clothing, or whatever will hold them on their journey to the mill. Herein is the difficulty in sumach collecting. The article is not marketable until the leaves have been ground fine and bolted. The machinery or plant required to do this, costs more than a collector of the leaves can afford, hence the business, to be profitable, requires a mill, and within easy reach of numerous collectors, as the crude leaves are too bulky to warrant packing and shipping to a distant mill. The business of preparing sumach for market, is mainly confined to Richmond, and some other cities of Virginia. The collectors take their small lots to the mills, where they are bought. After the sumach is properly manufactured, it is sent for sale to New York and other cities, where it comes in competition with the imported, or Sicilian Sumach, which is the leaves of *Rhus coriaria*, a species cultivated in southern Europe. However abundantly sumach may grow in a locality, unless the owner of some grist mill will introduce machinery to grind and bolt the leaves, or some capitalist will establish a mill for the purpose, the gathering of the sumach crop can not be made profitable.

Propagation of Trees by Layering.

A. S. FULLER.

Layers are really nothing more than a form of cutting, the only difference being that they are allowed to adhere or remain attached to the parent stock—drawing sustenance therefrom until roots are emitted, after which they are detached and become individual plants. In making layers of trees or shrubs, we bend down a branch, and cover that portion with earth upon which we wish to produce roots. Figure 1 shows a layered branch buried

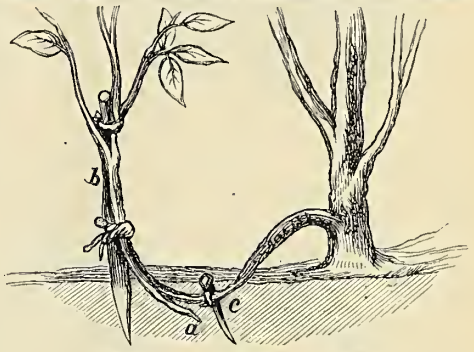


Fig. 1.—A LAYERED BRANCH.

in the soil. An incision is usually made on the under side of the branch before it is laid down, and the knife inserted just below a bud if there is one convenient, passing into the wood, and then an inch or more lengthwise of the branch, forming what is termed a tongue, as at *a*. A hooked peg, *c*, may be employed to hold the layer in place, or a stone laid on it, as it is quite important that the branch be held firmly in place. If the branch is large, the end may be tied up to a stake, as shown at *b*. It is not often that forest trees, except some ornamental varieties, are propagated in this way, but it is well enough to know how to do it, when necessary to increase the stock of some choice or rare specimen. Layers may be made at almost any season, but they will root sooner if made when the trees are growing rapidly, than at any other time.

Some kinds of trees will produce roots when layered without cutting the branch, and exposing the alburnum—in fact, all will, in time, but the surest way is to cut the branch as described. With some kinds, roots will be emitted so slowly that the layer must remain at least two seasons before it will be safe to sever it from the parent stock. Evergreens may be layered in the same way as deciduous trees, but the operation should always be performed during the period of active growth, else the wound made on the layer is likely to be covered with resin, which may prevent the emission of roots.



Fig. 2.—POT LAYERING.

Sometimes a part of a tree or a small branch will vary from the original; when this occurs on a large tree and where the branch cannot be made to reach the ground, we are compelled to elevate the soil, or some similar material to the part we wish to propagate, unless it is some species which can be readily propagated from cuttings, buds, or grafting. If we desire to obtain a layer, we have only to place a pot or box of soil near the branch, so that it can be covered with earth, the same as if near the ground. After the branch is layered, the soil surrounding it must be kept moist until roots are produced. Figure 2 shows a branch layered in a pot from which a piece has been taken from one side to admit the branch; the crevice is closed with a piece of board or shingle placed on the inside of the pot, after which the pot is filled with soil. If the pot is surrounded with cloth or moss, it will in a measure prevent the earth from drying, and therefore less frequent waterings will be required.

Various Garden Structures.

The beauty as well as the enjoyment of a garden may be greatly enhanced by the introduction of structures, the utility of which is apparent. If there

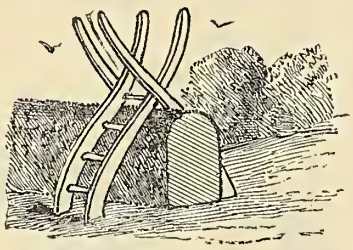


Fig. 1.—A STILE FOR HEDGES.

is a high eminence, it may be appropriately surmounted by an observatory, to allow of a still more extended view. If there is a lake or a stream, bridges will be suggested, and a boat-house may often be desirable. If there are ornamental fences, gates with ornaments are required, or if the grounds are divided by hedges, stiles will be needed. While garden structures are, as a rule, made in winter, summer, the time when the garden is most frequented, is the proper season for selecting the localities for them, and the best for judging what their effect will be. Summer is also a good time in which to select the material, though it may not be made up until winter. The several designs here given are those suggested by Mr. Elias A. Long, a landscape gardener of Buffalo, N. Y.

STILES.—Ornamental hedges are much more generally used than formerly, and in some localities they largely serve the purpose of boundary fences. One of the objections to a hedge is the difficulty in crossing it. A gate in a hedge seems out of place, and the stiles are usually cumbrous structures. There is no reason why a stile should not be as portable as a step-ladder, to be used wherever it is needed. Figure 1 shows how a stile of this kind may be built. The two parts, where they cross, are held together by bolts, or a single long bolt may be used; the curved form of the sides allows it to be employed without resting on and injuring the hedge.

BRIDGES.—Whoever has a stream, however small, running through his grounds can produce a variety of ornamental features. It may be improved as a stream, it may often be made to form a small lake, or its current may be dammed to produce pleasing cascades. A stream will often require the introduction of a bridge, or, in some cases, a bridge may cross a dry ravine. A bridge should be abundantly strong in its roadway, and the railings, while they may be ornamental, should always convey the idea of sufficient strength. Rustic bridges are very pleasing, and the design given in figure 2, is easily executed by the use of the branches of Red Cedar. In some places a bridge may be constructed of rocks, and be in better keeping with the surroundings than a more elaborate structure would be. Figure 3 will afford a suggestion for building bridges of this kind. Rustic and rock bridges may be made still more picturesque by trailing the Virginia Creeper, and other hardy climbers upon them.

SUMMER HOUSES.—Some fifty years ago it was thought necessary for every garden, large or small, to have a summer-house. These were cumbrous structures of timber and boards, with shingled roofs, and usually painted white, with green blinds. They were rarely used, but given over to cobwebs and dust, and generally became convenient tool-houses for the garden. A rustic summer-house may often be introduced as a picturesque object in the grounds, and may be a pleasing resort for reading, sewing, etc., in hot weather. A summer-house may often fitly crown a high portion of the grounds, wherever an extended view may be had, or an abrupt promontory on a lake. Figure 4, gives a pleasing design for a rustic summer-house of a hexagonal form. It is built of Red Cedar, with three sides closed and three open. The interior is finished in small, straight branches of cedar, nailed on obliquely. The exterior of the closed sides, and the two half open sides, are finished in pieces of cedar poles, about three inches in diameter, and split in halves; these are nailed on as shown in the engraving. The roof is thatched with straw, laid on from nine to twelve inches thick; this serves to keep the interior cool, and accords with the rustic style.

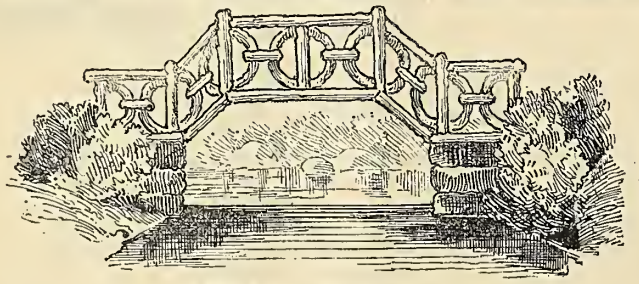


Fig. 2.—A RUSTIC BRIDGE.

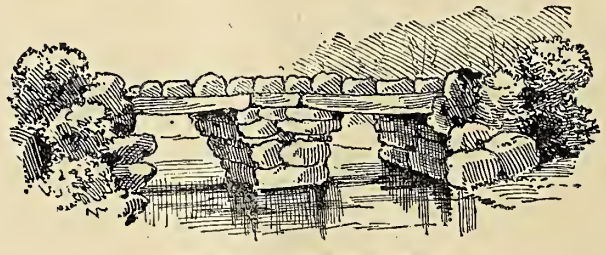


Fig. 3.—A BRIDGE OF ROCKS.

The Importance of a Supply of Wood.

No one who is at all familiar with forests and their products, needs to be reminded of the importance of having at hand an abundance of wood of various kinds, or how much it contributes to the general welfare and happiness of a nation. But there are those who have not paid much attention to this subject, who claim, and no doubt honestly believe, that the great progress made of late years in the use of iron in the place of wood in building houses, bridges, piers, ships, and other structures, are but indications of what is to follow, and that in a few years there will be no great demand for wood.

The building of railroads, which reach almost every part of the country, has aided in the distribution of coal, and made this in a great measure a more convenient, and in many instances a cheaper fuel than wood, but in building these roads a vast quantity of wood has been used, and of the best kinds, not only for ties, of which nearly or quite three thousand are put down per mile, but on many of the roads wood is still used for fuel. There is now nearly or quite one hundred thousand miles of railroads in the United States, and we have only to multiply this by three thousand, to ascertain that three hundred millions of ties have been used in their construction, leaving out of account the thousands of wooden bridges and other structures, in the building of which more or less wood has been consumed. The railroads may have assisted very materially in checking the consumption of wood for fuel, but they have probably more than balanced the account in the amount used in their construction, besides the three hundred million of ties must be duplicated every ten years, for the average life of a railroad tie will scarcely exceed a decade, and with nearly all kinds, except the best oak, it is a year or two less.

The demand for railroad ties is not likely to decrease, but increase, although as timber becomes scarce and prices advance, preserving processes will doubtless be employed to prevent rapid decay. Stone, brick, and iron will also come into more general use for buildings, but the increase in population will also tend to increase the demand for wood for other purposes besides that of buildings.

It is only a little more than a century since coke was first employed for smelting iron ores. The introduction of this fuel to take the place of charcoal, it was thought would save the forests of the world from destruction by the charcoal burners, and while it has done much towards making it possible to produce sufficient iron to meet the great and constantly increasing demand, it has not superseded charcoal, and there is probably more charcoal used to-day than at the time coke was first employed in a smelting furnace. Charcoal is still used in furnaces and forges, and there are several establishments in this country that use annually over a million bushels each, and a score of others that consume from twenty to twenty-five hundred thousand bushels.

Notwithstanding the number of substitutes that are employed, the demand for and consumption of wood appears to increase, and to-day there is probably more wood used for making boxes of various kinds than there was in the construction of buildings of all kinds in the country three-quarters of a century ago. Furthermore, no kind or quality of timber appears to escape the insatiate demand of the artisan of the period, and he not only finds ready uses for the large and small, the hardest, toughest, and most durable, but also for the soft and spongy, the latter being preferred for grinding up into wood-pulp for making paper.

Not a year passes during which scores of new devices and inventions of new articles of manufac-

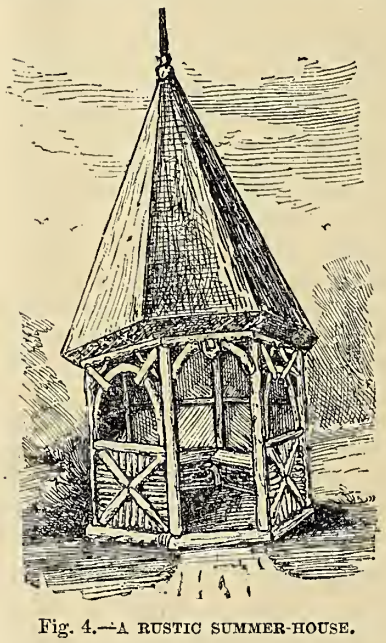


Fig. 4.—A RUSTIC SUMMER-HOUSE.

ture, are not brought forward, that are made in part or wholly of wood, and while singly they may not call for a great quantity, they do in the aggregate use up an enormous amount of the material.

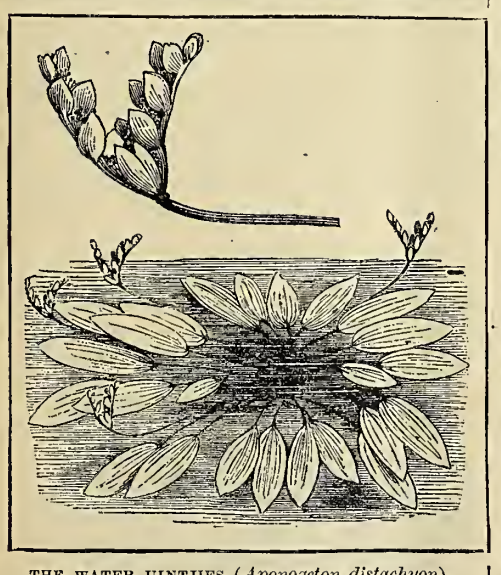
The invention of a pleasing toy for children has frequently caused the demolishing of hundreds of acres of forests, to supply the manufacture with wood used in its construction. It is idle to talk of our natural forests furnishing a supply of wood for the future use of our people, even with the most careful management and economy in preventing waste, there must soon come a time of great scarcity of all kinds of wood. With an increase in population, there must necessarily follow a corresponding increased demand, because experience has shown, that whenever any other material has been substituted for wood, it merely releases a certain amount, and allows it to seek other channels or markets. No matter in what direction we turn, the fact meets

us, that the best and most valuable forests of the United States are rapidly disappearing, and the sooner we commence as a nation to economize in the use of wood of all kinds, and preserve the forests now existing, as well as commence the planting of new ones, the better it will be for the present as well as future generation.

It is not necessary to select the best and most fertile land upon which to raise trees, for any that is rich enough to give the plants a good start in life will answer, because the annual dressing of leaves that the soil receives will be sufficient to keep the trees growing. There are doubtless many situations, where a single tree would not thrive, as on a prairie, a bleak hillside, or other exposed positions, where by planting a number together, they would mutually protect each other, and usually take care of themselves. We have millions of acres of barren, naked, sandy, rocky, and otherwise unproductive lands, that might readily be covered with valuable forests. Large plantations of forest trees have been established in Europe, and there is no good reason why the same should not be done in America. Let us do it now. A. S. F.

The Water Uintjies.

Those who have upon their grounds a small body of water, no matter how small, provided it does not dry up in summer, can enjoy a number of beautiful and interesting plants, which can only be grown as aquatics. A collection of the Water Lilies, which, besides our own, with its rich fragrance and dazzling whiteness, together with its fine pink variety, would include exotic red, blue and other species. Besides the water lilies, there are a number of less conspicuous plants, none of which are more desirable than the Water Uintjies. We have not been able to find out what "Uintjies" means, but it is said to be a term applied at the Cape of Good Hope to the plant known to the botanists as *Aponogeton distachyon*, an aquatic plant related to our native Arrowhead, so common in swamps. *Aponogeton* is said to be a mongrel name, between Celtic and Greek, and to mean "near water," which is not very descriptive of this plant, which is a thorough aquatic. From a tuber about the size of a hen's egg, there arise numerous leaves, upon long, slender leaf-stalks. The leaves float, are from a foot to eighteen inches long, of the shape shown in the engraving, and of a clear green color. The flower stalks arise among the leaves, are divided at the top to form two branches, upon the surface of which are placed the flowers. These have neither calyx nor corolla; they consist of obtuse, ivory-white



THE WATER UINTJIES (*Aponogeton distachyon*).

bracts, in the axils of each of which are twelve stamens, with dark-purple anthers, and four to six pistils. The plant is odd in its general appearance, but is noted for its abundant and most exquisite fragrance. It flowers continuously all summer. Though it comes from the Cape, it is hardy in New England, and would probably be so in all but the very severe portions of our country. It is said that the flower-stalks and tubers are eaten in Africa.

Isolated Trees with Decorative Surroundings.

Much of the French decorative planting is too elaborate to be successfully copied in our climate. They have, however, a method of surrounding isolated trees upon a lawn, which may sometimes be adopted by us with good effect. Mr. Edward André, one of the most judicious French garden designers, in communicating the illustration to the "Revue Horticole," which we here reproduce, says that this is a kind of ornamentation that may easily be overdone, and advises great moderation in its employment. It is best suited to young specimen conifers, furnished with branches quite to the ground, such as a well-grown spruce, a Lawson's cypress, etc. Gay flowers would be out of place, the object being to make use of colors that will make a striking contrast with the lawn. In the example illustrated, a circular bed of some dark colored Coleus was planted next to the tree, and extending quite up to it. This was surrounded by a many-pointed star with rounded angles planted with "Dusty Miller" (*Cineraria maritima*), kept low by severe cutting. At the points, or where the adjoining arcs unite, small circles are formed in the middle of each of which are plants of *Ircsine acuminata*. We give this design as a suggestion, and one capable of being varied in many ways. Ivy, pegged down, and the Golden-netted Japanese Honeysuckle, the charming *Retinispora plumosa aurea*, which may be kept at a hight of a few inches might be planted. Ivy with Dusty Miller makes a fine contrast. Indeed one who wishes to attempt this kind of ornamentation will find an abundance of materials suited to the purpose.



A TREE SURROUNDED BY A BORDER.

Grapes Here and There—The Ives.

Some twenty years ago the Concord was advertised far and wide as "The Grape for the Million." It was indeed successful over a wide extent of country, and did much to popularize grape culture, as it would yield grapes under neglect. But after a while localities were discovered in which even the Concord would rot, and was worthless. It was generally successful—with exceptions. Then came the Ives grape, an Ohio seedling, probably of the Hartford Prolific, for which was claimed all the good qualities of the Concord, and a superiority to that variety as a wine grape. Some eighteen years ago we visited the first vineyard of the Ives, ever planted, and more healthy, fruitful, vines were never seen. As to quality, not much can be said; there are some poorer grapes, and many better, but it seemed that one who had a vine of the Ives, would have an abundance of grapes, and his success with this indifferent kind would lead to a trial of better varieties. Wishing to know more about the Ives, we planted six vines of this variety in our experimental vineyard. When these came into bearing, they bore abundantly, but failed to ripen. The berries, when full-grown, cracked open, rotted, and did everything that a grape ought not to do. After this had been repeated year after year, the number of vines of the Ives was reduced to two. Several years ago, Mr. Geo. A. Meissner, one of our most intelligent viticulturists, called on us; in a general talk upon grapes, we gave him our experience with the Ives. This so astonished him, that we brought him specimens of the fruit, that at that time should be just ripening. After keeping two vines of the Ives for several years, the number was reduced to one, which is continued as an instructive specimen. Some weeks ago, in writing Mr. Meissner, among other grape gossip, we mentioned, in reference to a former conversation, that our remaining vine of the Ives, in a vineyard of over fifty varieties, had never given us a single perfect berry. In reply, Mr. M. wrote the following, which, though in a private letter, is so full of good sense, that we venture to publish it. He says: "What you say with reference to Ives and Elvira with you, proves again that we must not expect any variety to do well in all different sections. The Ives is, here, Jefferson Co., Mo., and especially in the country south and southeast of here, one of the most reliable and surest grapes, though its quality is always inferior, compared with the finer and better varieties. The Elvira, on the other hand, is rapidly growing in favor, especially in the lake regions of Ohio, on the islands in Lake Erie, etc., where it is now being planted very extensively." Here follow these words of wisdom from a grape-grower of the widest experience, which we commend to those who are searching for "the grape for the million." Mr. Meissner continues: "Thus every section will have varieties which are specially adapted to its locality, soil and climate. But in this very question of adaptability of the varieties, there is yet a great deal to be learned. Experience is the best teacher in this matter." Let us hear no more about "the grape for the million," but let each cultivator endeavor to ascertain which varieties of grapes are best for his locality and soil. With the grape, as with other fruits, catalogues are not a sure guide. Neighborhood experience is much better than that of wider districts.

Growing House Plants in Moss.

In some of the Swiss villages, nearly all the inhabitants are engaged in watch-making. They work in large rooms, which, being abundantly lighted, and well warmed, allow the workmen to cultivate plants, that, on account of the uncertainty and rigor of the climate, can not be grown in the open air. The President of one of the local horticultural societies in Switzerland gives, in the "Revue Horticole," an account of the great success with which plants are cultivated in moss in these watch factories. One great advantage in the use of moss, is the readiness with which plants may be grouped in large vases and boxes. In France a "fertilized moss" is sold, but ordinary moss, with occasional application of liquid fertilizers, will answer as well. Ordinary sphagnum, or peat moss, such as is used by florists in packing, may be employed, but the writer prefers the moss which grows in sheets upon rocks, and around the trunks of trees at their base. Wire baskets lined with this moss are used, as are jardiniers of metal, glazed pottery, etc., taking care to provide sufficient drainage. The liquid fertilizer used on these house plants, should be without unpleasant odor; weak guano water, solutions of nitrate of soda, or sulphate of ammonia, may be employed, and very fine flour of bone may be mixed with the moss.

Notes From the Pines.

Having long cultivated our native plants, many readers and friends, when they come across unusual forms of these have kindly sent them to me, and my collection shows that double flowers occur in nature more frequently than is generally supposed. A dozen or more years ago, a young man sent me from a town in Massachusetts

A DOUBLE EARLY SAXIFRAGE.

This (*Saxifraga Virginiensis*) is a very common wild flower, and one of the earliest, but as the center of the little white flowers is greenish, they are not very handsome. The double flowers were little balls of pure white petals and really beautiful. The plant did not live, and I often regretted its loss. Last year a lady brought us, perhaps a dozen plants, of this same double Saxifrage, which she had collected within a few miles of this place, and afterwards brought more, showing that double flowers are not always due to cultivation. Two other early wild species, the Wood Anemone (*A. nemorosa*), and the Rue Anemone (*Thalictrum anemonoides*), occasionally occur double, and have been for sometime in commerce. I had long



Fig. 1.—A DOUBLE-FLOWERED MARSH MARIGOLD.

known of, and once before imported, but never until this spring succeeded in flowering the

DOUBLE MARSH MARIGOLD.

The single form of this, (*Caltha palustris*), which is often incorrectly called Cowslip, makes the brook sides and wet places bright with its golden-yellow flowers, the petals of which shine as if varnished. The double flowers, and they are very double, are little hemispheres (fig. 1) of the same brilliant golden-yellow. All double flowers are, as a rule, more lasting than the single ones of the same kind, as notably seen in the single and double geraniums. The double Caltha lasts for many days,



Fig. 2.—A NEW VARIETY OF MOSS-PINK.

while the single flowers soon fall away. It remains to be seen if this plant can adapt itself to garden soil. Variations in color in wild plants are quite common. Many blue or red, or purplish species having white forms. The Bird's-foot Violet (*V. pedata*), the largest flowered of our wild violets, often changes its pale violet-blue for pure white, and still more rarely, two of the petals are of an intense purple color, and velvety like a pansy.

THE MOSS PINK, OR DWARF PHLOX,

(*Phlox subulata*), usually of bright rosy-purple, is sometimes a snowy white. This occurs in the wild plant and shows a natural tendency to vary. An English amateur florist, the Rev. John Nelson, took this Phlox in hand, and in raising a large number of seedlings, was rewarded by several well-marked forms. The flowers in these varieties, one of which is given in fig. 2, are varied with pale-pink and dark-purple markings in a striking manner. About a dozen of these have been named and put into commerce. The success of Mr. Nelson, with one of our common wild flowers, should encourage our own amateurs to experiment in this direction, while the work would be interesting, a marked success in the production of new desirable forms would have its pecuniary reward. PINES.

Harvesting and Storing Onions and Onion-Sets.

Those who supply the city markets, are wise if they do not have many onions to store for the winter. If bunched and sold as green onions, they bring much more than when quite ripe. A dozen half-grown, or even smaller onions, and half a dozen of full size, usually make a bunch. When from two-thirds to three-fourths of the onion tops turn yellow and fall over, the crop may be pulled, laying the bulbs from two or three rows together, with their tops all in one direction. The onions are left here to complete ripening. If a storm comes on, they may be laid up in cocks, and spread again as soon as it is over. When the top, at the neck, or where it joins the bulb, is twisted and no moisture exudes, they are dry enough to store. The tops are cut off at about an inch from the bulb, and they are spread in a cool airy loft, not more than two feet thick. On account of the difficulty of keeping them, many growers ship their onions directly from the field. On account of the marked fluctuations in the price, others prefer to store them, and take advantage of a sudden rise in the market. The chief difficulty in keeping onions is, their tendency to heat. It does not hurt them to be frozen, if they can be thawed very gradually. If onions in barrels or bulk are frozen, it is well to cover them with hay to the depth of several feet, and keep them in a frozen state as long as possible.

ONION-SETS show when they are ripe in the same manner as large onions, by the turning yellow and falling down of the tops. It is best to shear off the tops as the sets stand in the rows. They are taken up by running a trowel under them, and throwing them upon a coarse sieve, which will allow the soil to be separated. Store the sets in a loft, spread not thicker than three or four inches. At the approach of cold weather, throw them into heaps, and cover with hay or straw, or with mats. If they freeze, keep them frozen as long as possible. Those who raise onion-sets for their own planting, need have no difficulty in storing them, as it is much better to plant them in autumn; they are perfectly hardy, and if planted then, will give an earlier and larger crop than if set out in spring. The land for planting sets should be as well enriched, and as thoroughly worked, as for sowing the seed ("black seed,") in spring. Mark out drills nine inches apart, leaving six drills in a bed, and omitting the seventh for a path. In planting the sets, take care to get them right end up, placing them about three inches apart, and pressing them well down into the soft mellow soil; cover the rows well with soil, using the feet, or by the use of a rake, and finish the planting by rolling the ground.

ONIONS FOR SEED.—Those who raise onion seed, should carefully select the bulbs at harvest time, choosing not only the largest, but those of a shape nearest like that desired for the future crop. These large selected onions are even more difficult to keep through the winter than the general crop, and on this account, as well as others, it is better to set them out in the fall, October being usually the preferable month. The land for seed onions should be fairly rich, and marked out in rows about two and a half feet apart. The onions are to be set about six inches apart; the only precaution to be taken, is to be sure that the bulbs have a covering of at least three inches of fine mellow soil.

Strawberries for Next Summer.

Whether we make a bed the coming fall, or next spring, by setting out plants from runners that have taken root in an old bed, a fair crop of fruit can not be expected until 1886. A few scattered berries may be borne, but nothing like a crop, until such plants have been in their new location for a year. The only way in which it is possible to prepare a bed that will afford a crop next spring, is to set out pot-layered plants. At present, nearly all of the nurserymen supply pot-layered plants; it is true that they cost more than plants dug up from the beds where they have taken root, but only enough more to pay for the extra trouble. If one has an established bed, he can easily strike the runners in pots himself. The earliest runners will give the strongest plants, but it is not too late to layer them early this month. Small pots, two or three inches across the top, are to be filled with light rich soil. Strong runners, just about to take root are selected, and a pot of soil is set or plunged in the soil of the bed, directly under each runner, planting the pot well down, so that its edge will be on a level with the surface of the bed. Place the runner, or rather the young plant at the end of it, in the centre of the pot, and hold it in place to prevent it being blown about, by the use of small hooked pegs, pieces of wire bent like a hair-pin, or even by laying a small clod or stone upon it. When well rooted, which will be in about three weeks, the slender stem that connects the new plant with the old, may be cut, and the potted plants will be ready to set out in the new bed. The sooner such plants can be set out the better, August being the best time if the plants are ready. The bed being well prepared, and manured, set the plants in rows two feet apart, with eighteen inches between them in the row. Give the pots a thorough watering, and the ball of earth may be turned out without the least disturbance of the roots. In a dry time the plants should be watered, and all runners that appear upon them are to be pinched off, in order to concentrate the growth in the crown. At the approach of winter, cover the bed with straw; it should lie thinly over the plants, and thicker between them.



Awnings for Country Dwellings.

Blinds are convenient to protect glass, shut out the sun and admit air, but they are far less desirable for summer than awnings, which afford ample shade without excluding abundant light and ventilation; and standing further from the window, they more effectively ward off the sun's heat. Those made at the shops, with iron frames, cords, pullies, etc., are expensive; but any one can construct simple good looking ones, with small outlay and little work, which will be sufficient to protect windows from hail stones. We give our own method, which works well.—Two pine pieces, one by two inches, are cut as long as the window is wide. Two similar pieces of desired length are nailed to these at the corners—or may be halved on to them—to form the frame, (fig. 1), which is strengthened by short braces at the upper corners. A strap hinge at the back of each lower corner screwed to the window frame, allows the top to turn out and down to a horizontal position. Suitable cloth is tacked to the top window casing or frame, carried slanting to and over the outside bar when let down, tacked to it, and extended six or eight inches further, to form a valance, with its edge scalloped as seen in figure 2. A triangular piece is fitted to each side, sewed at the top, tacked to the side of the frame, and the lower side scalloped continues the front border round the three sides. A cord, shown by the dotted line, extends from the center of the outer bar to an eye at the middle of the top of the window, thence to a side eye, and hangs down. Pulling on this raises the frame,

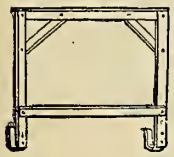


Fig. 1.

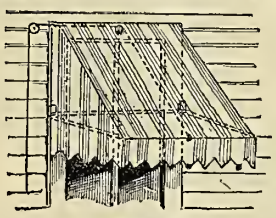
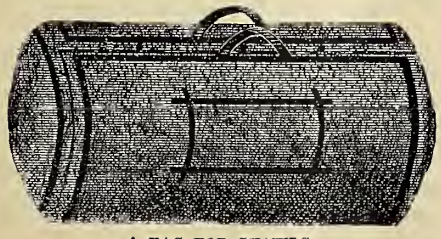


Fig. 2.

gathering the cloth against the top of the window, at evening and on cloudy days. After a rain, the awning should be shaken out to dry, to prevent rotting or decay. With this care, such an awning will last for years. Almost any cheap cloth will answer temporarily, and may be reversed; but good, strong fabric will cost but little more, the work of construction will be the same; it will show better, and be far more durable. The whole expense outside of the cloth will be a trifle, for the pine sticks, two hinges, a few screws and nails, cord and staples.

Shawl Bags.

A bag is a capital thing to save a shawl from the dust of a journey and, if of good size, can be used for holding toilet articles, etc. The best material

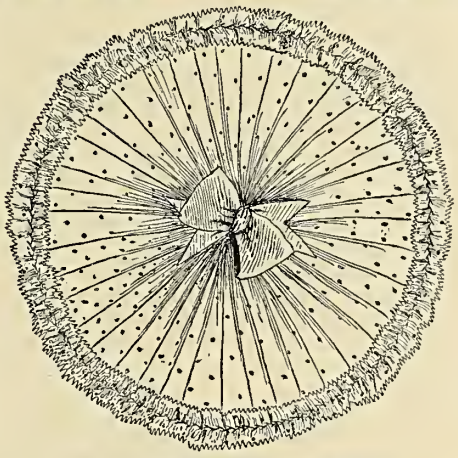


A BAG FOR SHAWLS.

for making shawl bags is brown water-proof. Cut two round end pieces eight inches in diameter, and a piece twenty inches wide by twenty-five inches long. Stitch these together, leaving the straight seam open nearly all the way across, and bind its edges and the edges of the end-pieces with worsted braid, sewed on with the machine. Close the opening with three buttons and button-holes. Stitch a piece of braid on a band of the water-proof two inches wide, and fasten on firmly for handles. The outside pocket can be made of any size or left off, but it is very convenient for papers. The bag shown in the engraving has an extra row of braid stitched on, but that is left entirely to the taste of the one who is to use it. A person while travelling will never wish to be without one of the shawl bags, after finding out how useful they are.

Wash-Stand Screen.

The screen shown in the engraving is made over a hoop, the diameter of which should correspond



A ROUND WASH-STAND SCREEN.

to the width of the wash stand. Cover the hoop as smoothly and tightly as possible with some bright-colored cambric or Silesia, and make an outside covering of plain or cotton Swiss, half the width of the hoop, and long enough to full on slightly. Gather the opposite edge, and after fastening it firmly on the outside of the hoop, draw it down to the center and finish it with a large bow of ribbon of the same color as the lining. The edge should be finished with a Swiss ruffle, about three inches wide, worked in "berring-bone" stitch, with worsted. Make a loop on the back by which to hang it up, and suspend it so that only three quarters of the screen can be seen.

Wedding Presents.—Beginning House-Keeping.

Everybody likes to receive wedding cards. But with this pleasure often comes the perplexing query, "What shall I give?" The custom of exhibiting wedding presents, is a questionable, if not a vulgar one; and the story of a bride who received so few, that she felt obliged to hire from a jeweler sufficient silver-ware to make a good display, is an intimation of the desire people have, to make their presents show to the best advantage. It would not be strange if the smaller presents were sometimes hid behind the larger, even though the latter, sent because "they must send something that would show well," were unaccompanied by the sincere regard which went with the former. Of course, much uncomfortable, if not bitter feeling results, and unless one can feel independent enough not to care, it is better to give in a less public way. To those who are about to commence housekeeping, a most acceptable gift, and one of which housekeepers in general know the value too well to ridicule, would be a willow basket of suitable size and shape, containing six linen hemmed towels for glass and silver; six soft linen crash dish towels; three hemmed cloths for washing dishes; three soft linen cloths for washing glass and silver, and three cloths, knit of fishers' twine, for washing pots and kettles; three flannel cloths, hemmed, for washing paint, etc.; three roller towels of linen crash, two yards long. These may be added to by the donor in many inexpensive ways. Another helpful gift would be a home-made book. The covers are of gray, brown or black Bristol board, bound with satin, with a spray of flowers painted on them in water colors, or they may be covered with satin, and the flowers embroidered on them. Inside are seven cards of the size of the covers, and of white board, with each day of the week—one on each card—written in illuminated letters at the top. These are intended for the young mistress to write down the special work of each day, and hang the card for the day in the kitchen for reference. This is a great help to system and order in the home. We confess great sympathy for the young mistress who, hitherto unaccustomed to care or responsibility, finds herself at the head of a home which she is to keep up in all its appointments. The table is to be supplied with palatable and nutritious food three times every day, or one thousand and ninety-five meals in the year; the house to be kept neat and wholesome; company to be entertained, and the vexed question to be thrust before her, perhaps every few weeks, whether she or her servants shall rule. There is but one answer to this question. It will be the one that knows the most. So, if the true housekeeper has not learned before marriage, she will begin as speedily as possible to perfect herself in all things pertaining to the comforts of home; so that her servants will not have occasion to reply to her, as an old colored servant said to the writer once many years ago, when asked to perform some service—"Laws now, what do you know—you'se nothing but a child."—Probably the first discouraging trials will be with the cooking, for the ideal and the real in this department are far apart. Cook books are showered upon us and are good and useful, many of them; but they only tell how to do, and not why so many fail. There is comfort, and truth too, in the proverb—"Every failure is one step toward success"—and determined effort to make any one dish perfect, will generally accomplish it. Let us see the reason of some failures in preparing a breakfast. It shall be a simple one: coffee; fruit in its season; oatmeal; fish balls dropped, and muffins of rye and graham flour. These may all be delicious or wretched. We will suppose they do not come up to the expectation of the cook, and will see why. The coffee should be clear, and of distinct flavor. It is muddy and bitter with grounds in the bottom of the cup—well, it was made of coffee ground at the store. It should be bought in the kernel, and burnt, or at least, ground at home. You know then that it is pure. It was not settled. It should have had half an egg with the shell, broken into the grounds, and a spoonful of cold water stirred with them before adding the boiling water. It boiled too long. It should never boil over five minutes, then be set aside ten minutes to settle. The oatmeal is stiff and dry with husks in it. It should be smooth like blanc-mange. There was not enough water added at first. It did not cook long enough. It should boil three hours the day before, and half or three-quarters of an hour in the morning, with added water. The muffins are tough and dry. They should be so light that a touch will break them. They were mixed too stiff, and the oven was not hot enough to bake them in ten or fifteen minutes, which is the longest time it should take. The fish-balls were soggy and fat. They should be of a golden-brown, light, and no fat in them. The reason is, the fat was not boiling hot when they went in. They should cook in three minutes. All these are little things, but great things depend upon them.

ETHEL STONE.

Little Household Conveniences.

It is often convenient to boil several kinds of vegetables in one kettle. Peas, string-beans, and new potatoes cook well together. For this purpose, small bags made of coarse, thin cloth are most excellent. Make the sacks the desired size and run a string through the top. Place each kind of vegetable in a separate sack, and tie the string around the handle of the kettle, so it can be easily drawn out. When the vegetables are

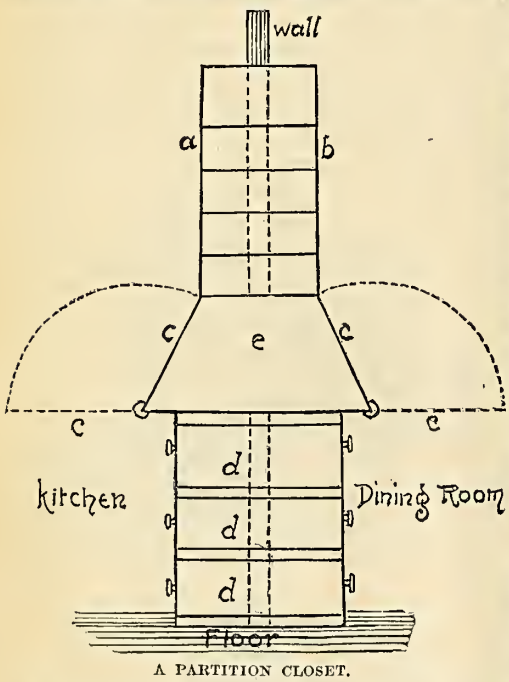
cooked, hang them up by the string for a few minutes to allow them to drain. In cooking a "hoiled dinner" in the winter, a favorite dish in New England, the vegetables retain their shape better and are superior in every way when cooked in these sacks. Another article of convenience in the way of a sack is a clothes-pin bag, made after the style of a school-satchel. Make it of heavy shirting, with a flap to button over, so that the pins will be protected from dust. Make a strap of sufficient length to be worn over the neck, allowing the bag to hang down in front or on the side. Such a sack will he found very conveuient when hanging out clothes, and if placed over the neck when the clothes are taken in, the pins can he easily cared for.

My way to brush the dust and cob-webs from the ceiling, is to tie a piece of old clean cloth over the broom and draw it across the ceiling. It removes the dust much hetter than can be done with the naked hroom, and without the danger of the ceiling being soiled. In one corner of my kitchen is an old, small-sized table, with several inches of the legs sawed off. It is called the "children's tahle." It is there my little girls took their first lessons in kitchen work. It is very useful in teaching them to do such work as ironing, washing dishes, etc. I find it convenient also for my use, where I can do a great deal of work sitting down, that would have to be performed while standing if a higher tahle was used. Where a person is afflicted and not able to remain long on the feet, much of the work can be performed while sitting, if such a table is used. NELLIE BURNS.

A Combination Closet.

E. E. REXFORD.

I was much pleased with an arrangement seen at a friend's, consisting of a closet or cupboard built into the partition hetween the kitchen and dining-room. The closet, *a*, *a*, projected about eight inches into each room. The leaves, *c*, *c*, opened to form a sort of table for receiving dishes, food, etc., and left a large opening, *e*, for the passage of food, dishes, etc., betweeu the two rooms. Below the projection into each room was ten or twelve inches, and this space was filled with drawers, *d*, *d*, which could be pulled out into either room. They were used for table-liuen, napkins, doyles, etc.



A PARTITION CLOSET.

The upper closet or cupboard contained shelves, with glass fronts for china, glass, and silverware. There were four or five of them, each about eighteen inches wide, and three and a half feet long, affording shelves enough for an ordinary family. The washed dishes could be set in from the kitchen side, and taken out for the tahle from the dining-room side, thus saving time aud many extra steps. Two slides at each end, when drawn out, support the turned down leaves. When these leaves were closed, the closet occupied but little space, and had the appearance of a hook-case. The one described had ground glass in the lower half of the sash doors. In front of the upper shelves on the dining-room side the upper half had clear glass; the glass doors on the kitchen side being lined with red, the silver and glassware showed to good effect against this background. The china, etc., occupied the lower shelves. The closet could not have been expensive, and the lady of the house assured me it was wonderfully convenient, and a great economizer of her time and work.

The Housekeeper who is a Philosopher.

AMELIA H. BOTSFORD.

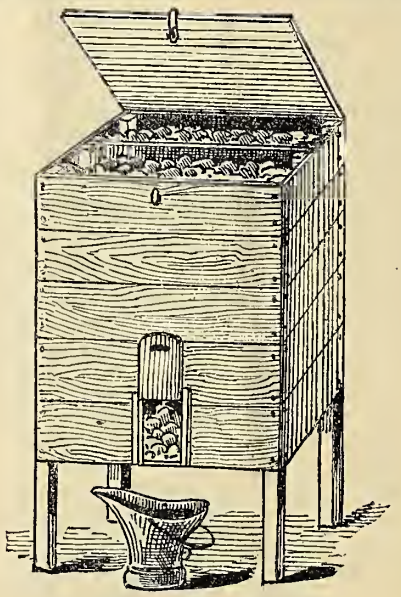
Reasoning upon the really essential material needs of her family, she reduces the numher to three, shelter, food and clothing, and first provides for these in the hest possible way. If ahle to select her home she chooses one warm in winter, cool in summer, convenient in arrangement and especially one in a healthful locality. She will care more ahout good drainage aud proper ventilation than for Queen Anne piazzas and ribbon flower heds. She will not desire a house too large for her family, considering that the more room, the more work; and if dependent on her own skill and strength to keep the home in order, she will eschew elaborate furnishings and delicate and fading colors in hangings and carpets. She will buy substantial furniture to avoid frequent renewals and constant repairs, and that as light as its purpose admits to save strain in lifting and handling. She will remember the lahor of dusting, and the fading effect of sunshine when tempted to buy fancy carved work and delicately tinted upholstery. There will he system in her management, with a careful subordination of routine to the comfort and happiness of the family. She will uot follow a set of rules rigidly, but adapt them to the variations of climate and the reasonable desires of the household.—Understanding that the object of eating is to nourish the body, and not merely to gratify appetite, she will study what articles contain the most nutriment in the most easily digested form: and with due regard to the season will not furnish heating food in summer or a too restricted diet in winter. Her meals will be provided regularly, at proper intervals, to allow the digestive organs suitahle periods of rest, and the food will be well cooked and ahundant. She will not load her tahle with indigestible dainties though all her neighbors may; and will waste little time and strength in making cake aud pies. She will not he ashamed to have it known that hreakfast lacks coffee and doughnuts, that dinner is served without pie, and supper without cake; that her children have a simple repast of bread and milk, or of hread and butter and fruit, or of baked potatoes with milk, convinced that such a meal is better in every way than one more elaborate, one taxing her time and strength to prepare and resulting in a cross, sickly family. She will not be famed for her cakes at church socials, nor importuned for fancy recipes; on the contrary, the neighbors will prohahly pity her hushand because his wife isn't a "good cook." But the hahies will be rosy and happy, and the mother will have time for a daily walk, or even to sit down and read by daylight!

She will, of course, provide suitable clothing for the family; and on this point will decide that health and comfort are to be secured at any sacrifice. Each member of the household must be clad with reference to changing seasons. Thin stockings will not accompany heavy cloaks, or exposed throats go with velvet drapery. Every garment will fit loosely enough to insure ease, but be finished in a workmanlike way; the material will be durahle and pretty, without heing at all striking. As the "philosopher" would avoid wasting time and lahor on what would soon be worn out, or discarded as unfashionable, she will avoid the whim of an hour and the extreme of fashion. She will not sanction large expenditure for dress or trimming so elaborate as to require much time and patience. She will consider that to devote the entire energies of a human mind to the subject of dress is a thing that is certainly unworthy of any true woman.

In brief, the philosophic house-keeper has courage equal to her convictions. All, doubtless, would admit that the larger portion of woman's work is not absolutely necessary; but only a philosopher will be ahle to forever forego the commou ambition of "having things like other people."

Convenient Coal Box.

Make the hox of any size and form, to contain the coal to be kept, and to fit the place it is to occupy in the wood-shed, cellar or elsewhere, hy nailing boards around four corner pieces of scantling, strong enough to hear the weight. Set the hottom to slant towards the front to throw the coal to the opening, which is closed by a board sliding up and down behind two halved strips, nailed on each



CONVENIENT COAL BOX.

side of the aperture. The corner pieces project as legs, leaving the front bottom of the hox high enough to easily set a coal-scuttle under it.

Waste from Well and Cistern Pumps.

The drip, and the waste water when several pailfuls are taken out to get down to cool fluid, should never be left to form a "mud puddle" which is unsightly; and the impure water is likely to run back into the well or cistern. Ten minutes' work will nail together a couple of boards in the form of a V of any needed length, which set at a slight incline will carry all the surplus water away. It is perhaps hetter to set a low hox eighteen to twenty-four inches square directly below the end of the spout to place the pail into, and run the V-shaped trough from the outer side of this. Better still is a square underground brick drain, or a tile one, or one made hy nailing four narrow boards together; the last-named is less durable, but will suffice for two or three years. Keep it dry around the well.

THE EYES.—For any serious trouhle with the eyes, of course a surgeon or occulist should be consulted. Those who read much should be very careful as to the light, which should come from above and over the left shoulder. Gas often flickers and is unsteady, and is much inferior as a light to read by, to a good kerosene lamp. Many with weak eyes have found great benefit from giving them a cold bath the first thing in the morning and the last thing at night. Hold the face in a basin of cold water a few minutes, remove the face from the water with the eyes shut and afterwards gently dry them with a soft towel without irritation.



An Unexpected Journey.

AGNES CARR SAGE.

The great cherry tree in Deacon Dodge's front yard was bending beneath a luscious burden of red and yellow fruit, and Charlie Dodge, perched on the highest rung of a tall ladder was rapidly filling a large basket with the juicy Ox-hearts. He looked anything but happy this sunshiny summer morning, although the birds twittered gaily in the green branches around him, and every fifth cherry popped into his mouth instead of the basket. "Its a downright shame," he grumbled, "to keep a fellow at work on the Fourth of July, and I wish all the cherries were in Jericho."—"Never mind Charlie, boy," said his mother, who had come out to secure some of the fruit for a pie, and overheard his complaint. "You know it is only because your father was called away unexpectedly, and he is afraid rain and birds together will make havoc of the cherries if they are left a day longer. Be spry and you will be able to go to town and see the fireworks this evening." She returned to the house, and the lad was left once more alone, but not for long. A whistle sounded down the road, and a merry voice sang:

"Squeak the fife, and beat the drum,
Independence Day has come."

And then, as Charlie's freckled face suddenly appeared, framed in green leaves, two boys came to a halt and called, "Hollo, what are you doing up there! are'nt you going to town to see the celebration?"—"I can't," sighed Charlie. "Pa had to go to Dorchester, and left me all the cherries to pick before night." — "Glad I'm not you then, for there is to be great sport in the Park, a greased pole, hurdle and sack races, and at three o'clock a woman is to go up in a balloon. Wish she'd take me with her. But why can't the cherries wait until to-morrow?"—"Father thinks it will rain to-night and spoil them."—"Nonsense! there is'nt a cloud to be seen," and Jack Martin, and Bobby Button turned their faces up to the sky, which was indeed "deeply, darkly, beautifully blue," without a speck to break the clear expanse.—"I think so too," said Charlie climbing out on a limb, and tilting up and down, "and oh! I do want to see the fun awfully."—"I tell you what," suggested Jack, "you come with us and see the sport, and we'll come back with you at four o'clock and get all the Ox-hearts gathered by dark."—This was a generous offer, but Charlie hesitated. "I don't know," he said, "I'm afraid pa would'nt like it, and the robins are so saucy and greedy they eat up all the best ones."—"My teacher says they deserve their share for killing the worms," said Bobby, "and just think all you will lose. Every one is going, I don't believe there will be another boy left in Pinville."—"Will you be sure and come home at four and help me?" asked Charlie, sorely tempted.—"Yes, sharp!" said Jack, "so throw us down a handful of your bothersome cherries and come along, for it is getting late.

Thus urged, Charlie filled his friends' and his own pockets, and without telling his mother his intentions, slid down the tree, and was soon trudging along the dusty road toward the county town some three miles distant from Pinville, the rural village where the trio lived. It was a warm day, but the highway was gay with merry parties in holiday attire, and as they entered the town, the music and firing was almost deafening. Houses were patriotically decked with flags and banners, masqueraders in quaint costumes as the "boys of '76," amused the spectators, and by the time the main-stand on the green was reached, from which the chief man of the place was to read the "Declaration of Independence," Charlie had forgotten everything except the enjoyment of the hour. But he was both surprised and annoyed to suddenly discover that his mother's little pet dog Mab had followed him, and now came crouching to his feet, sure that she was too far from home to be sent back. "What a bother," he exclaimed, but Jack just then called his attention to a gaunt female in a linen duster, with a green veil tied over her bonnet. "See, that is the balloonist," he said "is'nt she a guy?"—"Yes," put in Bobby, "but she's smart, and knows what she is about. She gets fifty dollars for her airy trip. And may lose her life."—So the lads wandered on, with Mab at their heels, listening to the Spread Eagle speeches, laughing at the efforts of some country clowns to reach the ham on top of the well-greased pole, popping cherry stones at every eat brave enough to venture out on the "Glorious Fourth," and investing their small stock of pennies in lemonade highly flavored with molasses, until at length they came to the balloon, which looked like some huge brown monster pinioned to the earth. "The car looks comfortable," said Charlie, "and I see a stock of provisions have been laid in for the voyage."

At that moment a bell struck quick and sharp upon the air, the cry of "Fire! Fire!" resounded on all sides, and a sudden rush of the crowd made Charlie hastily seize Mab and tuck her under his arm, for fear of trampling. It is marvellous how quickly a mass of people will collect, and how quickly they can disperse, and in five minutes the park was almost deserted, except by the three friends. "Only a barn or a hay-stack," said Jack, "let us stay here, and have a good look at the balloon." And as an engine went thundering by, followed by a stream of men, women and children, Bobby climbed unobserved into the wicket-car and seated himself on the cushioned seat.

"Up in a balloon, boys, up in a balloon," he sang, "come in and let us play we were on our way to Cloudland."—"Cloudland, sure enough," said Jack, glancing up to see that the sun had disappeared, and the sky was dark and threatening. "Why! all the blue is gone, and the wind is rising, we shall have a gale."—"Oh, the cherries!" cried Charlie in dismay, but the thought did not prevent his stepping into the aeronaut's basket to see what it was like. Jack was a mischievous chap, and thinking to give his friends a scare, slyly cut one of the ropes and began swaying the enormous machine back and forth. Both started up in affright, but were soon laughing at the joke, and rather enjoyed the motion.—"I wish we could go up a little way, and be pulled down again," remarked Bobby, when, even as he spoke, a fierce gust of wind—such as sometimes arises in summer—suddenly swooped down upon them, struck the balloon until it shivered like an animal in distress, and before the boys could realize what had occurred, the remaining fastenings were snapped, and with a bound that threw them from their seat, the brown ball flew up like a wild bird let loose from its cage, stopped, wavered, and then began once more slow-



"UP IN A BALLOON, BOYS."

Drawn and Engraved for the American Agriculturist.

ly, but steadily to ascend.—"Let us out, let us out," screamed Charlie, struggling to his feet, but already the earth was many yards below, and he saw Jack's horror-stricken face as he tried vainly to clutch the hanging ropes. Bobby would have jumped, but Charlie held him back, and poor little Mab whined piteously, as she was tossed from side to side by the swaying motion, and the ship of the air with its youthful passengers flew relentlessly upward and onward. "There is no help for it," gasped Charlie at last, sinking back white and trembling, "we are off for Cloudland and no mistake."—"But what will become of us?" asked Bobby, struggling manfully to keep back the tears as he watched the crowds below fade into tiny specks, the friendly houses and trees, and even the flames of the burning building disappear in the distance.—"I don't know," groaned Charlie, and oh, how he wished himself back in the old cherry tree, while the faces of his father and mother rose reproachfully before him.

"It was Jack's fault for cutting the first rope," said Bobby, "and the others could not have been securely fastened."—"We ought never to have gotten into the car," said Charlie, "and here comes the rain." Sure enough, they had entered a wet cloud, and were drenched to the skin, but as they mounted higher the sky became clear, although they could see it was raining beneath them. They were above the clouds which shut out the earth like a heavy fog.

"It is sort of fun, too," exclaimed Bobby, becoming exhilarated, "like flying, and how small everything seems."—"Fun I don't fancy," said Charlie, gloomily, "and the trouble is we don't know where we may come down."—"In Europe, or Africa, maybe," cried Bobby, rather pleased at the idea.—"In the ocean more likely, to be drowned and eaten by sharks, and I think we are descending now. Throw out a second bag." They did so just as they skimmed the top of some forest trees, which made the car careen so they had to cling to the sides for dear life.

On they went, sometimes one way, sometimes the other, as the various currents of air struck them, now in danger of being dashed to pieces against some tree or rock, now floating out of sight of human habitation, and it seemed as though they must have travelled hundreds of miles by the time they saw the sun set in crimson and gold, and the stars come out in the blue vault above.

"I am hungry," said Bobby, and then he thought of the box of provisions. "Madam Green Veil will have to give us her supper to-night," and he drew out a couple of sandwiches, one of which he pressed upon Charlie, who, however, was too forlorn to eat, bitterly regretting his disobedience, and clasping the dog in his arms, murmured: "Oh! Mab, poor Mab! shall we ever see home again!"

There was no moon, and the darkness settled down thick and dense. It was useless to look out any longer, and at length overcome with dread and homesickness, the two boys said their prayers, and sobbed themselves to sleep; while beneath the cloudy sky the frail bark drifted on without guide or ballast, truly at the mercy of the winds. It must have been about midnight, when a severe shock awakened each lad with a frightened scream, to find themselves once more at rest. The balloon had come to a standstill, but where? "We are in a tree or in a jungle," said Bobby, putting out his hands and feeling in the darkness.—"For here are leaves all around us, and the ropes seem to be caught in the branches."—"Shall we try and reach the ground," asked Charlie, "the balloon may fly off with us again."—"No, I guess its gas is pretty well exhausted. Better wait until daylight, or we may land in a nest of cannibals or rattlesnakes. We may be in Japan, for all we know."—Mab began to whine, but was quieted with a piece of meat, for fear of awaking the savages or beasts of prey, and shivering with cold in the chill morning air, the boys sat imagining all sorts of horrors. For to their excited imagination every rustle was a venomous snake, and every shadow a crouching foe, while minutes seemed hours, and they could hardly believe it was but yesterday they had seen Jack's terrified face gazing after them in fright and amazement as the balloon left the park.

At last the day dawned, and with it a great and wonderful surprise; for as the light revealed surrounding objects, they rubbed their eyes and gazed at each other in mute astonishment. A tropical scene, with palms and cocoanuts, and dusky forms, would not have amazed them half as much as did the reality, when they discovered that they were not in Europe, Asia, or Africa, but anchored safe and firm in the leafy boughs of Deacon Dodge's favorite cherry tree.—"Is it a dream?" ejaculated Charlie, staring at the old stone-house, the familiar well, and the juicy Ox-hearts, now discolored and cracked open by yesterday's storm. The collapsed balloon forbade that, however, and now Mab's joyful barks brought Jack Martin tearing from the house, to shout and hurrah in an ecstacy of delight and welcome. When they once more touched the earth, Charlie felt as though he would rather meet a band of savages than his anxious pale-faced parents, who now came hurrying to meet and greet them.—"Oh, papa," he cried, "I am so sorry the Ox-hearts are spoiled, and you may take my rifle, and all that I have to pay for them."

But the good Deacon only sobbed as he clasped his son in his arms.—"My dear boy! I am sure you have been punished enough, and I care for nothing since you are safe at Cherry Farm."

Charlie never forgot the terrors of that night in the clouds, and though scientific men decided that the balloon went some distance west, and then, the wind veering, was blown almost directly back again; the boys scorn the idea, and are sure they travelled thousands of miles, if indeed they did not go round the world on their unexpected journey.

The Doctor's Talks.

One of my young friends asks about "Monkey's Bread," a fruit which he has seen mentioned in some book. Monkey's Bread is the fruit of a tree better known as the Baobab tree, a native of the western portions of Africa, and known to botanists as *Adansonia digitata*. The tree is noticeable for the great size of the trunk in proportion to its hight. Trees with a trunk thirty feet in diameter are only about seventy feet high. The tree is also remarkable for the great length of its branches and of its roots. The shape of its leaves, and of its very large white flowers is shown below in figure 1. The fruit, also shown, is sometimes a foot in length, and has within a mealy pulp, which



Fig. 1.—THE MONKEY BREAD.

is mixed with stringy fibres; it has a very pleasant sour taste, and is eaten not only by monkeys, but by the people, who usually eat it with sugar, which the monkeys doubtless do not add.

I was reading the other day of the manner in which the English bumble bees injure the bean crop. The bean most commonly cultivated in England, is a kind seldom seen in this country. It has a tall, straight stem, with long flowers in little clusters. These flowers are too long for the bee to enter the usual way and reach the honey, as its



Fig. 2.—BUMBLE BEE CUTTING FLOWERS.

tongue is too short. The bee wants the honey, and failing to get at it in one way, he does just as you would do—he tries another. Knowing that there is honey at the bottom of the flower, the bee cuts a hole through from the outside, and reaches the sweets by a short cut, as shown in figure 2. This is very "cute" on the part of the bee, but bad for the farmer, as the pods from the blos-

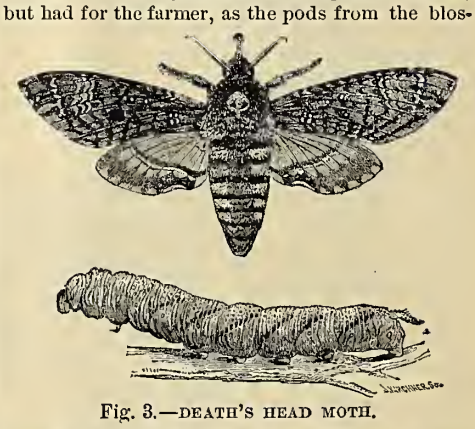


Fig. 3.—DEATH'S HEAD MOTH.

soms thus injured, seldom ripen. Some farmers pay boys to hunt for and destroy the bee's nests, while others think that, on the whole, no great harm is done, as a portion of the pods are not injured, and these grow all the larger for the thinning.

YANKEE BEES AS SMART AS BRITISH.

It is not only the English bees that make use of this trick to get at the honey, but our own bees do the same. The beautiful Rocky Mountain Columbine first came into cultivation a dozen or more years ago; its great beauty is due, in part, to the very long spurs to its flowers. One morning I discovered the flowers, upon my only plant, in a miserably bedraggled condition. On examination, I found that each spur had a small hole near its end. What could have made it? When more flowers opened I was early on the watch, and found that the bumbles, failing, so to speak, to enter by the front door, and reach the honey at the bottom of the long spurs, broke in at the rear, and like sensible bees, cut a hole through which they could reach the honey with their tongues without trouble.

"HOW CAN I KNOW THE DEATH'S HEAD MOTH?"

This is a question that has been more than once asked of me, the questioners not being aware that this is an European insect. The caterpillar is very large, and in Europe feeds upon the potato plant, just as our great green Potato-worm—more frequently called Tomato-worm—does in this country. The moth, (figure 3,) the largest in Great Britain, has a spread of six inches; its wings are brown, marked with yellowish and black. The back of the moth is black, and on its chest there is a marking in light yellow, which closely resembles the picture of a skull. In Europe the ignorant people, while not at all afraid of the caterpillar, which does all the mischief, have many superstitions about the moth. Its appearance in the house, especially if it flies against and puts out the light, is thought to foretell serious illness or death.

Many a Slip twix't the Claw and the Lip.

In a feathery grove of waving seed-weed, at the bottom of the deep blue sea, a Smooth and a Spiny lobster, met one day, with angry looks and bristling claws. A feud had long existed between the two families to which these lobsters respectively belonged, but to-day a fresh quarrel had arisen, and it occurred in this wise.

During a morning stroll for the good of his health, the Spiny lobster had suddenly come upon a sheltered nook, in which lay a large fish which had died a natural death, and for some reason had escaped the notice of the monsters of the deep. Delighted at the discovery of this unexpected treasure, Mr. Spiny-back hastened home to summon his family of children—comical little fellows, some six inches long—to a feast and picnic in the seaweed grove. What was his wrath and disgust, when, upon his return, he found an American or Smooth lobster in quiet possession of the prize, and evidently about to bear it away to his favorite crevice in the rocks, and there enjoy it with his own particular friends.

"See here, sir," shouted Spiny, with great pomposity, his long feelers trembling with excitement, "that is my property, and I was coming with my family to feast upon it in the shade of yonder algæ. Please then to immediately drop that fish, and retire at once from our company."

"So ho!" cried Mr. Smooth-back, evidently feeling "that possession was nine points of the law," "there are two sides to that question. I just found the fish myself, and certainly shall not give up the prize at your unceremonious command."

"Do you know who I am sir?" growled the Spiny lobster, his pop-eyes standing out farther than ever. "I belong to the great Palinurus family of Europe, many of whom are giants, and weigh from fifteen to twenty pounds each. We too, were highly prized by the ancient Romans, and shall I yield to a common Smooth-shelled lobster like you, who are not much better off in your family relations than a poor miserable crab?"

"Just as you please," retorted the Yankee, enraged by this taunt, "but you will have to fight for your dinner if you want it," and he waved his mammoth claws menacingly, with a scornful glance from them to the small delicate extremities of his opponent, standing in rage before him.

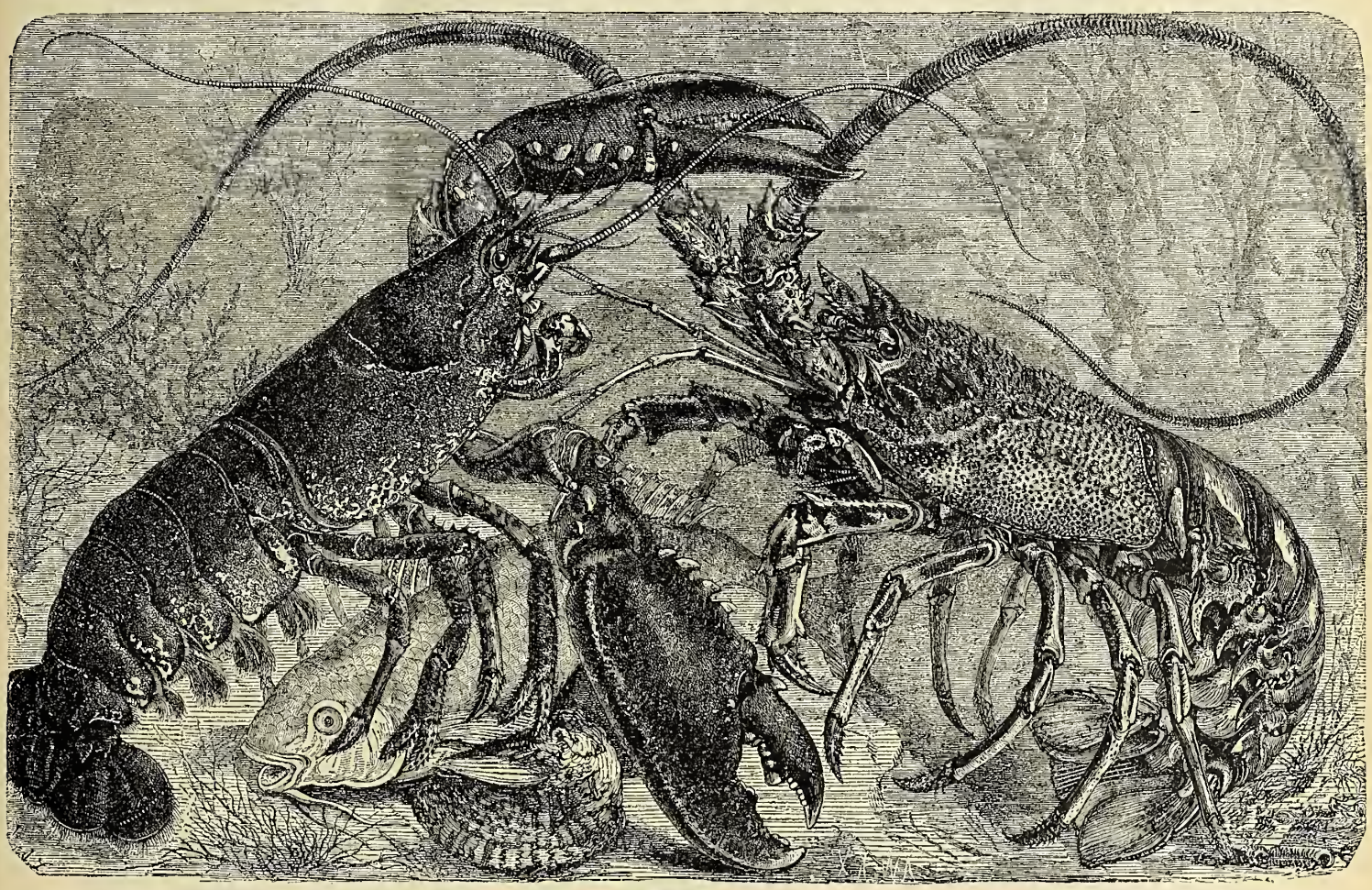
Spiny-back drew back a pace, "I discovered it first," he faltered, "and by right it is mine. If we took the matter before a judge, I feel very confident he would decide against you."

"But I have it," and the two lobsters glared at each other so ferociously, that all the little Spiny's ran off and hid in a perfect panic of terror.

"Why don't you cut it in two, and each take half," suggested a Solomon-like oyster, who had been a silent listener. But the crustaceans were too angry to heed, and crying, "all or none!" one seized the fish by the head, and the other by the tail, and tugged and fought until the water foamed and boiled around them. The European sacrificed half of his antennæ, and the American lost one of his large claws, which, imposing as they appear, can be knocked off with a very gentle blow, though fortunately for Mr. Smooth-back new ones will grow out again in time. Hot and furious the battle raged, and they might have ended like the Kilkenny cats, if a sudden clap of thunder had not caused each to spring at least a foot from the ground, for lobsters are all peculiarly sensitive to these thunder and lightning shocks, and as peal after peal continued to shake the earth and sea, forgetful of enemy, dinner, and all, except their unreasoning terror and desire to escape, the Smooth and the Spiny lobster each scrambled off to his hole, while a big fish that had lain quietly awaiting its chance, swallowed the bone of contention, greatly to the amusement of the wise oyster, who chuckled in his shell, and whispered to his wife—a fair, white pearl, "Ah! there's many a slip twix't the claw and the lip."

Can You Talk with the Pencil?

If I had asked, can you draw? you would not perhaps have been so much interested. Yet drawing is in a great measure talking with the pencil. If one asks the way to a neighbor's, or to the next village, you can reply by using paper and pencil in a manner that will be more useful than mere words. You will start with the point where you are; direct him to take the next right-hand road, to take the next left-hand turn, after passing a large elm tree, and after crossing the bridge to keep straight on. All these points you can make upon the paper, and the inquirer, if he forgets your directions, can look at the sketch and be sure he is right. So, if you are about to build a rabbit hutch, or a bird house, make a sketch of it, that is, say upon paper just what kind of an affair you will build. If it does not quite suit you in some parts, rub out and draw anew, for it is much easier to make alterations in your house on paper then it is in the thing itself. Then having fixed upon the size for the house, mark down the figures, and you will be pleased to find how much easier it is to build, if you have the sketch at hand to tell you how. "But I can't draw"—Did you ever try? The first lesson you need is, to draw a straight line. Try to draw a horizontal line about two inches long, without the use of a straight-edge or ruler. If not straight at first, try again, and keep trying until you can make one that is fairly straight. Then make another line about a quarter of an inch from the first, and then others, all an equal distance apart. Next try perpendicular lines in the same manner. A few lessons in drawing lines, horizontal and upright, making a number of both at different distances apart, but all of each set at equal distances, will be very useful in educating the eye and the hand. You can also try drawing long lines, others one-half as long, and so on, first making the length by your eye, and then applying a measure. These will be capital exercises for odd times. T.

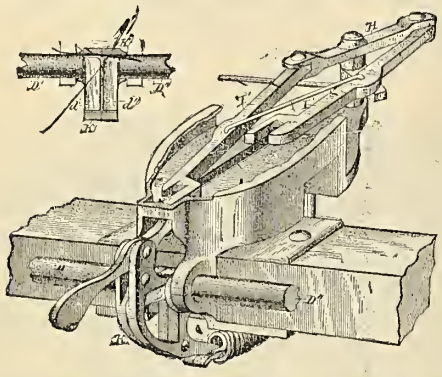


A DISPUTE AT THE BOTTOM OF THE SEA.

Engraved for the American Agriculturist.

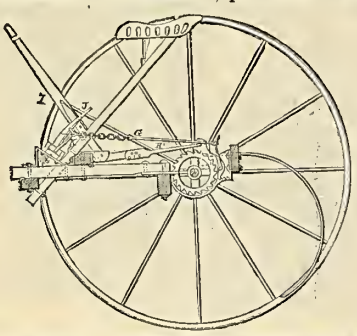
OUR RECORD
OF
Recent Agricultural Inventions.

Corn Planter, Check-Rower.—A. Anderson, Galesburg, Ill. Feb. 12; No. 293,395. This invention relates to that class of check-row attachments to corn planters, in which a rock-shaft placed transversely



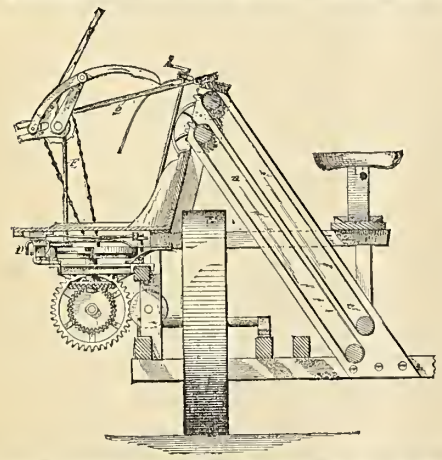
on the planter, is provided with a forked lever at each end, to be swung by knots or tappets on a stretched wire, thereby giving motion to the rock-shaft, such motion being transmitted to the slide-bar used to actuate the seed measuring and discharging devices. The engraving shows the parts containing the improvement patented. The motion of the rock-shaft *d*, *d*, being transmitted through the rocking plate *k*, the sliding bars *i*, *i*, and the oscillating bar *h*, to the planter seed-slides by suitable mechanism not shown. The claims of the patent embrace only the combination of the parts shown.

Horse Rake.—J. M. Clark, Greeley, Colorado. Feb. 5; No. 293,998. The inventor claims as new, the combination with the lever *i*, and chain or rod *g*, connected to a forward moving pawl, of the spring-catch *j*, and bell-crank lever or treadle *k*, pivoted to the frame-



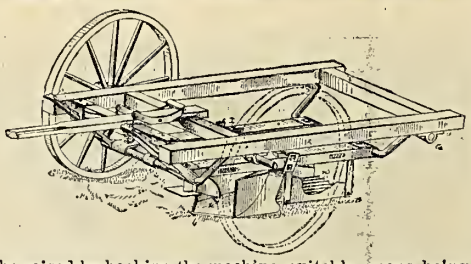
work of the rake, in position to adapt it with the spring-catch to move in an oblique plane, so that it may be operated by the driver's foot to bring the parts above named into action to dump the rake. The rake is held down by a forward pressure on the lever *i*.

Grain Binder.—J. H. Gordon, Rochester, N. Y. Feb. 19; No. 293,649. This patent covers two improvements. The object of the first is to sustain the overhanging end of the standard *f* of the binding-arm shaft rigidly in position, without interfering with the passage of the



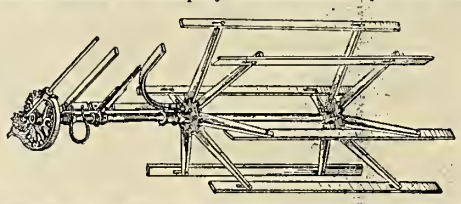
grain thereunder, which end is attained by the form and position of the braces *b*. The second part of the invention provides a kicker or ejector, which projects outward immediately below, and beyond the edge of the table, thus ensuring the delivery of the bound bundle, and preventing the bundles from clinging to each other, and being carried by the machine. These improvements, shown in section in the engraving, apply particularly to the machines previously patented by the same inventor.

Potato Digger and Ridger.—B. W. Binford. Richmond, Va. Feb. 12; No. 293,403. This invention is designed for preparing ground for planting potatoes and root crops, for covering and cultivating such crops, and for digging them when matured. It consists broadly of a cart from the axle and main frame of which is suspended a frame carrying adjustable plowing and digging attachments. This frame is so constructed as to



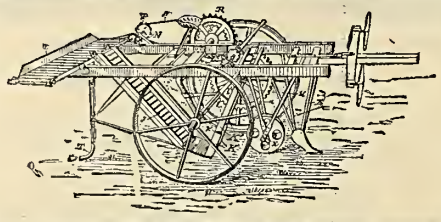
be raised by backing the machine, suitable means being provided for holding the frame at any desired elevation. The engraving shows the machine with attachments for harvesting. When wanted for planting, the inclined plate *k*, and the grating *n*, are removed, and the standards *i*, are provided with plow points and turning boards.

Harvester Reel.—Walter A. Wood, Hoosic Falls, New York. Feb. 26; No. 294,103. The object of this invention is to simplify the mechanism by which the



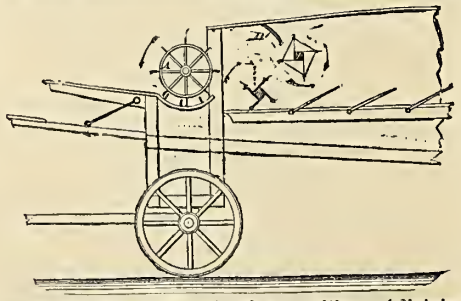
operator in his seat on the machine, controls the position of the beaters in striking the grain. The invention consists in the means used to secure the operating lever in different positions at the will of the operator. The reel-shaft supports the beaters, and takes its motion from the bevel-wheel. On an iron plate bolted to the reel-support is pivoted the operating lever by a bolt, which is adjusted to engage certain perforations in the lever-supporting plate, thereby varying the inclination of the beaters as desired.

Ditching Machine.—J. T. Fitzpatrick, Monticello, Ohio. Jan. 1; No. 291,043.—This machine comprises the truck-wheels and frame, the plow *e*, the regulator-wheel *g*, the cutter-bars *k*, the scoop *l*, the endless



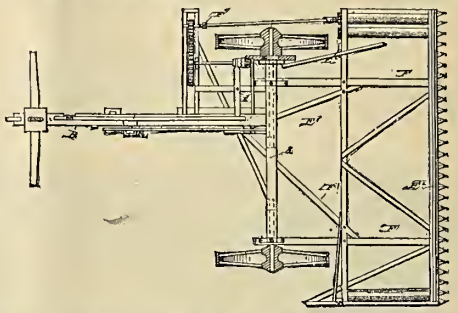
apron *j*, for carrying the dirt to the delivery apron *m*, and the adjustable support *t*, together with the means for adjusting gearing, and operating these parts. The operation of the machine will be readily apparent from the engraving.

Threshing Machine.—A. T. Hawley, Alton, Ill. Feb. 5; No. 292,019. This invention aims to secure the more complete separation of grain from straw, by em-



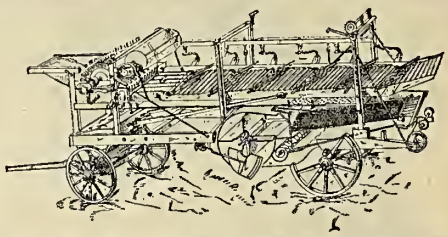
ploying two beaters working in opposition. Adjoining the threshing cylinder *a*, and oppositely revolving is a heavy beater, which throws the straw upward against the guard *d*. Above and behind the heavy beater, is a light beater, which strikes the straw as it is falling from the guard. The wings of both beaters are ironed and armed with spikes. The engraving shows a longitudinal section of a portion of a thresher containing these improvements.

Harvester.—C. S. Stickle, Pekin, Ill. Feb. 5; No. 293,202. The aim of the inventor is to improve the means for lifting and lowering the forward portion of a "header," that is the portion which carries the sickle



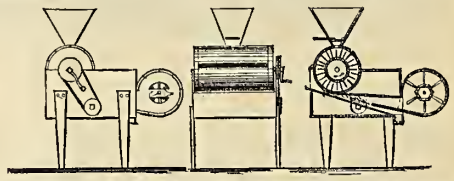
frame, together with those for adjusting the elevator frame, and operating the elevator. The engraving shows a plan view partly in section, the elevator frame and the arms of the reel being removed. The claims of the patent embrace the bars *f*, *f*^{1}, *f*^{2}, and *k*, upright standards carrying adjustable bearings, and secured to the bars *f*; the transverse bar *a*, with a fixed bearing, and short independent axles in *a*; the tongue *b*, and various attachments thereto.

Threshing Machine.—A. J. Hoag, Battle Creek, Mich. Feb. 19; No. 293,876. The inventor's aim is to provide more efficient means for separating grain from its straw. To this end he provides mechanism for holding the fingers at different inclinations with respect to the beaters; also special grating-bars, for facilitating



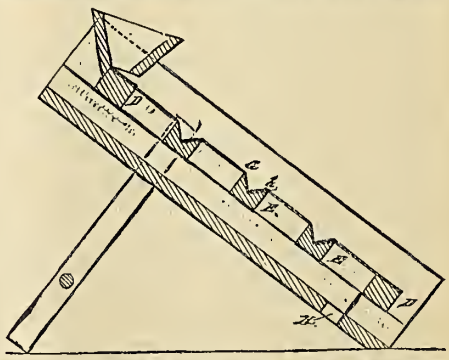
the escape of the grain to the lower shaker, and means for adjusting the grating-bars in relation to the beaters. The engraving shows the improvements applied to an ordinary threshing machine of the vibrator class, the inclosing boards being removed.

Huller, Cleaner, and Separator.—W. W. Jackson, Bethany, La. Feb. 5; No. 293,029. The inventor claims as new in this pea or bean huller, the



combination of the fan, the inclined sieve, the rotary toothed hulling cylinder, the stationary toothed case with openings for the discharge of grain and trash, as shown in the engravings.

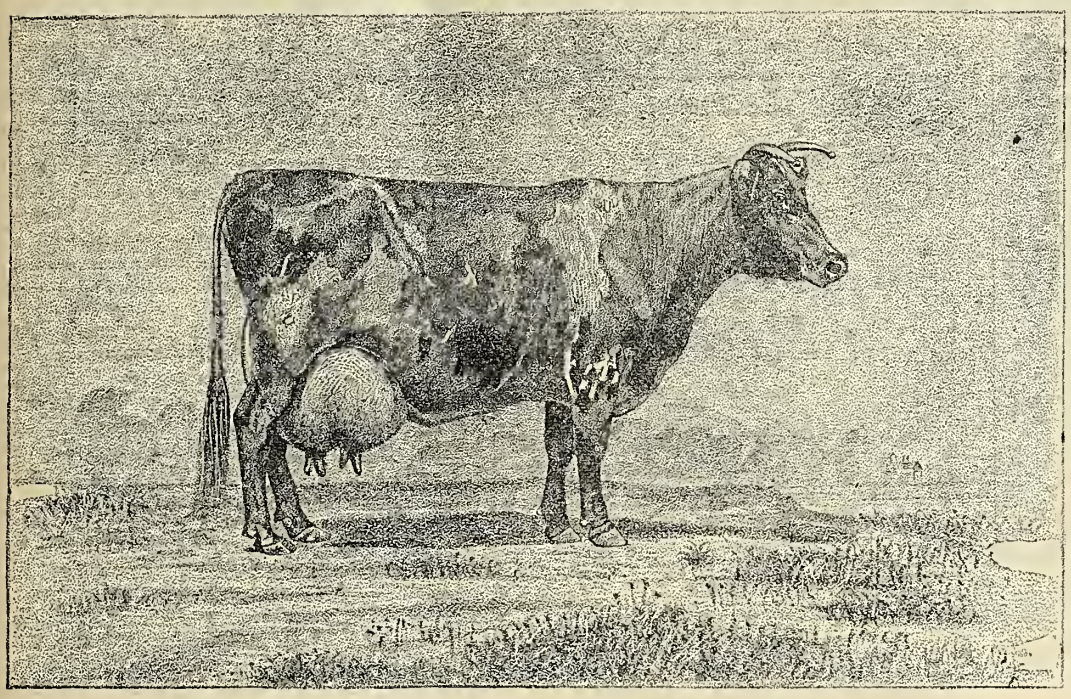
Cockle Separator.—J. M. King, Rochester, Minn. Feb. 5; No. 293,039. This cheap and simple separator, is said to be rapid and efficient in action. It comprises suitably inclined bottom and side boards, cross-



bars *d*, *d*, guttered bars *e*, *e*, to serve as detents, the screen *g*, held in the gutters, and smooth plates of metal *k*, to facilitate the movement of the grain to the screen. The cockle finds a way out through the opening *h*.

A Fine Milch Cow.

We herewith present a portrait of a pure-blooded Ayrshire Cow. "Duchess of Smithfield" is a fine specimen of a comparatively modern but very hardy and useful breed of cattle. She is a perfect type of the famous Douglas family of Ayrshires, and has taken first prizes at State Fairs since 1879. With a record of nearly nine thousand quarts of



A FINE AYRSHIRE COW.—*Drawn and Engraved for the American Agriculturist.*

milk in a single year, on moderate feed, and without forcing, she stands high among the list of great milkers. Her grand udder measures sixty-eight inches in circumference, and indicates, better than words can express, the great capacities of the animal as a producer of milk. The average Ayrshire cow may not be chosen for her beauty, but the constitutional vigor, great milking powers, and the general air of business shown in the picture (from a photograph by Schreiber) must inspire any lover of true bovine worth with more than thoughts of profit. This cow very thoroughly combines the good qualities of a superior milch cow. We wish her tribe may increase among our dairy farmers.

The National Horse Show.

The second National Horse Show held in Madison Square Garden, in the City of New York, was, like the first, gratifying to its promoters. There was a fine display of horses, of which we shall print engravings in the future.

The "Garden" is really an amphitheatre, capable of seating some ten thousand persons, and of accommodating as many more. Within the oval arena, well covered with tan-bark, half a dozen or more four-in-hand coaches may be driven at once, while around the sides of the great building, occupying an entire city block, excellent stalls and loose boxes were arranged for the comfortable accommodation of the horses. The premium list was very full, and the prizes attractive, varying from twenty-five to five hundred dollars each, the same animal being permitted to enter for two or more prizes in different classes.

If there is any one thing which is discouraging to lovers of horses attending the State Fairs, it is the fact all the best animals are shut up and locked in dark stalls, where it is almost impossible to get a sight of them at all, except through the special favor of their keepers. Here all the loose-boxes were slatted, so that their occupants could be distinctly seen, and the horses in the stalls, when not eating, were almost uniformly tied heads outward by two hitching reins, so that even vicious horses could not bite.

The show consisted of breeding animals of the numerous classes, as well as of useful ones. Thus there were several classes each of Thorough-breds, Arabians, Trotters, Roadsters, Horses-of-all-work, Heavy Draught, Clydes, Normans, Coaching horses, etc., numerous classes of driving horses, as carriage horses, "T-cart" or "Dog-cart" horses, "Cobs," Ponies, Coupé horses, Four-in-hand teams, etc., Saddle-horses, Cobs, Ponies of all sizes shown under saddle, Hunters, those entered for jumping, besides trained fire-engine horses, Police-horses, Cavalry horses, etc.

All these classes, one hundred and twenty-one in all, in which there were entries, were exhibited and judged in the arena before the assembled multitude, who were free to express their approval by applause or otherwise, when the ribbons were awarded. Popular judgment in such cases is usually very just, and it requires good judges to independently brave the disapproval of the crowd.

The impression made by the banged and docked horses, the grooms, the footmen and drivers in livery, the tights, top-boots, etc., and the vehicles of all sorts of strange and useless forms, was much as if a piece of "Rotten Row" or "Pall-mall" or some other fashionable part of London had been imported to New York and put on exhibition as a sort of after-clap to the walking matches and other great shows, which occupied the same arena a few days before.

Nevertheless as England really does lead the world in horse matters, especially in the use of the horse as an article of luxury, why should we not imitate her, and if need be, import English horsemen to show our rich young fellows who want to ride to hounds, to chase foxes (or scent-bags) across the country, to drive four-in-hand, tally-ho coaches, and all that sort of thing, how to do it all in true cockney style on American soil.

The most numerous impressive classes were, as may be supposed, those of horses for pleasure and show-driving, and for use under saddle. I here include the coaching teams, and all the various carriage teams, matched cobs, ponies, etc. The hunters formed a very interesting group, having a highly thorough-bred look, being extremely muscular, very thin, greyhound-like, and usually tall horses, with grand bone, large joints, and a suppleness really surprising. One of these, Mr. Fred. Gebhard's "Leo," a six-year-old chestnut gelding, sixteen and a half hands high, cleared a bar six feet six inches high, landing safely with his rider—the highest jump of which there is any record in either English or American horse annals.

Ponies were very numerously represented, Shetland, Highland, Welsh, and many other kinds. The smallest full-grown one was the seven-year-old mare "Midget," standing only nine and a half hands high (thirty eight inches). The dividing line between ponies and cobs seems to be fourteen hands or thereabouts. "Cobs" are pony-built horses, above fourteen and under fifteen hands high.

There was an astonishing disparity in size between the little fellows of nine or ten hands, and the enormous draught horses which were shown in their classes. There were not many entries of these, but they made up in bulk. One gray mare stood eighteen and a half hands high, and weighed, it was said, nineteen hundred and sixty pounds; a gray gelding of four-years-old, was seventeen and a half hands high, and weighed eighteen hundred and fifty pounds. A dapple-gray Norman stallion, "Marquis," shown by H. G. White, of Syracuse, sixteen and a half hands high, and weighing eighteen hundred pounds, was by odds the best stock horse of the heavy ones.

There was a small but choice show of coach stallions, a class of horses which it will pay farmers to patronize if they have large, sound, well-formed mares. Among these were two French stallions of large size and wonderful grace and beauty of form and action—"Tyrolien" and "Telesphare," belonging to W. S. Gurnee, of New York. The Arabian stallions, presented by the Sultan of Turkey, to Gen. Grant, were the only pure Arabs shown. Fine specimens of strong blood.

The growing love for the horse, and for the manly sports which center about him, is becoming both a fashion and a passion with our rich men, and it certainly should be in every way encouraged as likely to produce lasting benefit to the country in many ways. America may well feel proud of her trotting horses. Let us try to produce a breed of good walkers.

The Turnip Fly.

The wavy-striped Flea-beetle, or "Turnip Fly," (*Haltica striolata*), is a great pest to young turnips when first breaking through the soil. If the young seedlings can be protected at this time until a few leaves form, they usually need no further care. One of the best preventives is to have the soil rich and well prepared, that the crop may push forward rapidly. Some turnip growers have found it profitable to employ boys with bags attached to curved forked sticks, which are run astride the rows of young plants. The beetles, when thus disturbed, jump into the bag and are afterwards destroyed. A common application is equal parts of wood ashes and land plaster, entirely covering the young turnip leaves. Finely powdered air-slaked lime may be dusted on with a bottle-shaped tin dish, having holes in the bottom, and a wooden handle in the top.

A Tomato Trellis.

Some support for the tomato vines is a necessity in the garden, not only for the sake of order and neatness, but the fruit is better when kept from contact with the ground. This support may vary

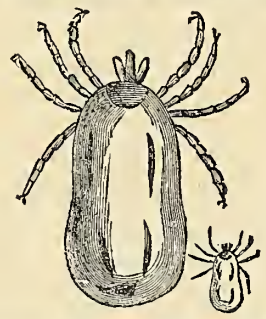


A TRELLIS FOR TOMATOES.

from the simple expedient of laying brush along the rows, to a carefully made trellis, intended to be used year after year. We prefer a sloping trellis to a straight one. The engraving shows one made with wire. A trellis in this shape may be readily made by the use of stakes and poles. Drive stakes of suitable length into the ground for supports, and use any small poles that may be readily procured for the slats. These may be nailed to the supports, or lashed to them with small wire or tarred twine.

About Ticks.

The Ticks belong with the Spiders and Mites, which are now admitted as a sub-order of insects. The true insects have three parts to the body, undergo a change from a larval or grub state, and the perfect insect has three pairs of legs. The ticks and their relatives have the body in two parts, have four pairs of legs, and undergo no change. Ticks are found in all parts of the country, but are most numerous in the warmer portions. They pass the early part of their lives upon plants as vegetable feeders, and hence are commonly called "Wood Ticks." The males, when they have served their purpose, die, but the females, like the female mosquito, cannot complete their career unless they gorge themselves with blood. The female ticks, whenever opportunity offers, attach themselves to animals. While some are confined to particular animals, as the bat, others have no choice, but attack cattle, dogs, and wild animals, as deer, etc. They have been found upon snakes and lizards, and will attach themselves to man. The female has a leathery skin, capable of being greatly distended, and when she attaches herself to an animal by means of her hooked claws, commences to suck its blood and enlarges to many times her former size. The engraving represents a common cattle tick, both before and after she has filled herself with blood. The writer has seen, in Texas, cattle with dozens of ticks attached to their sides, much larger than the one here figured. He has had even a more intimate acquaintance with them, when an intense itching indicated their presence on the person. A drop of water of ammonia allayed the itching, and so disgusted the tick that she released her hold. Every humane cattle owner will rid his animals of this pest. Grease alone, or mixed with a little

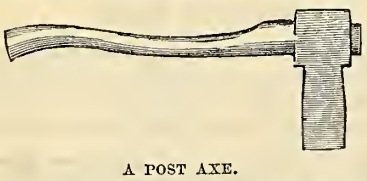


WOOD TICKS—NATURAL SIZE AND MAGNIFIED.

kerosene, and applied to the parts to which the ticks attach themselves, usually where the hair is thin, near the udder, will make the locality unpleasant for these annoying bloodsuckers.

A Fence Post Axe.

An axe for making rail holes in fence posts, is shown in the engraving. It is an ordinary axe blade, cut and hammered down by a blacksmith.



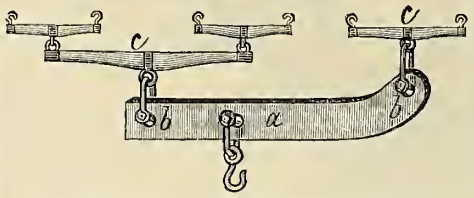
A POST AXE.

The blade is of the width desired for the hole in the post. With this axe and a good post-holder, a skillful person can make the rail holes rapidly.

MORE ABOUT LAMB-KILL.—Charles Ives, of Miscouche, Prince Edward's Isle, writes us, with reference to an article in June last, that he has had "a wide and most unpleasant experience" with the "Lamb-kill," which grows abundantly in his locality. His object in writing is to make known what he regards as a simple and certain remedy for animals poisoned by the plant. When a lamb is poisoned, it usually cannot stand, and when he finds one in this condition, he takes it under shelter as quickly as possible. "I take half a pint to a pint of milk, and while this is warming, I get a good sized onion, or better, a bunch of shallots (they being stronger), peel, and chop them as fine as possible. The chopped onion is mixed with the warm milk in a narrow mouthed pitcher, and given to the animal, making it swallow as much of the chopped onion as possible, as that is the important part of the dose. In very severe cases it may be necessary to repeat the dose after a few hours. I do not think I have lost an animal by poisoning since I began to use this remedy, while before, I have had five or six lying together, dead."

Three-Horse Whiffletrees.

A subscriber sends us his method of arranging whiffletrees for three horses abreast. The larger evener, *a*, is made of inch and a half plank cut with



WHIFFLETREES FOR THREE HORSES ABREAST.

a curve, so that the single whiffletree, *b*, is on a line with the others attached to the double evener, *c*.

Increase of Rainfall in the Western States.

N. C. EWING, NEBRASKA.

In the January number of the *American Agriculturist* an article appeared, entitled "Do Trees Increase Rainfall?" which fully answered the question propounded by its title, but as the author had evidently given the subject much thought, we were sorry he did not explain or even give his views of the cause of the increase of rainfall in the Western States, particularly in the district west of the Missouri. There is great practical importance in this question to those who are making themselves homes in the broad Western States, and investing their money in that region.

As to one fact, the writer of the above-mentioned article seems to be in error. The amount of rainfall in Illinois and Iowa, instead of decreasing, as he states, has been increasing year by year, so that in sections where, fifteen years ago, the complaint was of the scant rainfall, the people now are unable to properly plant, cultivate, or harvest their crops, because of the wet weather. This is not fiction but a stern reality, as farmers in those States will testify. Nor has this increase been confined to the region east of the Missouri. A few years ago all Nebraska, west of the "Missouri River Bottoms," was considered an unproductive waste on account of the drouths, there was no rain to keep vegetation alive. But soon the western limit of the rain belt was moved to the meridian of Lincoln. So recently as 1878–9 no rain fell in that district in Southern Nebraska from August 1878 until June 1879. Wiseacres said there is no use going further west, no rain ever falls there—it was a desert and nothing would grow. But during the past three years the amount of rainfall has been gradually increasing in the meridian of Lincoln, Neb., until the amount during the year just past has been nearly equal to that in any of the Atlantic States. The wise men have been compelled to move the western boundary line of the rain belt westward successively from county to county, until now the acknowledged rain area covers nearly the whole of the State of Nebraska. Such are the facts in regard to this western advance of the rain area and so general, regular and continuous has it been that we must look for the cause, not to electrical disturbances, or spots on the sun, but to something more intimately connected with the tide of immigration and advance of civilization.

As was truly said by the writer of the above-mentioned article, the winds that bear the rain and moisture to the western plains come from the east and south. These winds from the Atlantic and the Gulf, lose their moisture as they advance, and reach the highlands east of the Rocky Mountains almost devoid of moisture. In the days when the prairies were vast stretches of uncultivated land, the small amount of rain that did fall immediately ran from the surface into the "draws" or small creeks and creek beds, and thence at once into the rivers. The surface of the unbroken prairie was almost as impervious to the water as a bed of solid rock would have been. There could be little evaporation from the earth by the sun a few hours after a rain, for the water had run off from and not soaked into the ground. But as the land is cultivated, the rain is absorbed by the loose soil and remains a source of evaporation for several days. Some of it goes to form springs, which are bursting forth in cultivated districts where none before existed, and others, which were small and intermittent, have become strong and never failing. This change in the springs shows the increase in absorption of the rainfall by the cultivated land.

In this fact of the absorption and consequent evaporation of greater amounts of moisture may be easily seen the cause of the westward advance of the rain belt. The winds from the Atlantic and Gulf meet and carry with them the air which has been charged with the moisture evaporated from the cultivated districts, and expanding in rising over the land in its course toward the Rockies the temperature falls and rain is precipitated. The rain is, therefore, in much greater quantities than would have fallen had no moisture been added to the winds in their course. Very little moisture was added when the winds swept over unbroken prairies. The greater the amount of land cultivated each year in the eastern counties of the State, the greater will be the evaporation and consequently the greater the rainfall in the western counties. The cultivated region acts as a relay battery, as it were, adding new power to the current of wind that was almost exhausted of moisture. As the rainfall increases to the westward, the hardy farmer moves thither, breaks the land, and the rain area is moved just as much further west. Thus the process goes on, and probably will continue until the timber line of the Rockies is reached. This increase will continue in all parts of the State, as long as there is unbroken prairie to the east. We do not contend that cultivation in a district produces a greater amount of rainfall in that particular region, but we do maintain that on the western prairies, where the rain-bearing winds come from the east and south, the rainfall west of the cultivated land will be increased, and as agriculture advances so will the increase in rainfall. True as is the remark of the writer of the article referred to, that "our weather appears to be subject to important changes far beyond the reach of a forest or clover field," yet on account of the peculiar condition of this western country, and the direction of its rain-bearing wind currents, we are constrained to believe that we have herein briefly stated at least one of the leading causes of the increase of the rainfall in the Western States.

A Leaf Gatherer.

A simple and convenient device for gathering leaves from a lawn, or elsewhere, may be made by



A LEAF GATHERER.

fastening heavy cloth to two light poles, as shown in the engraving. The leaves are raked into a heap and the gatherer placed on it, after which the poles are brought close together and the leaves lifted.

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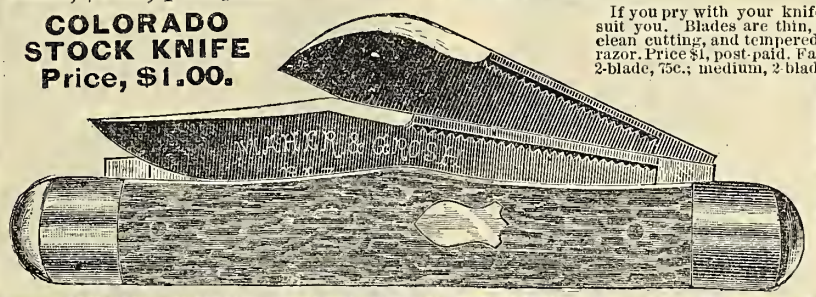


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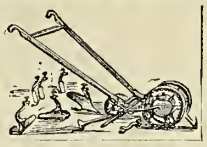
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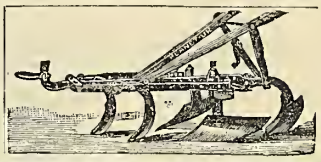
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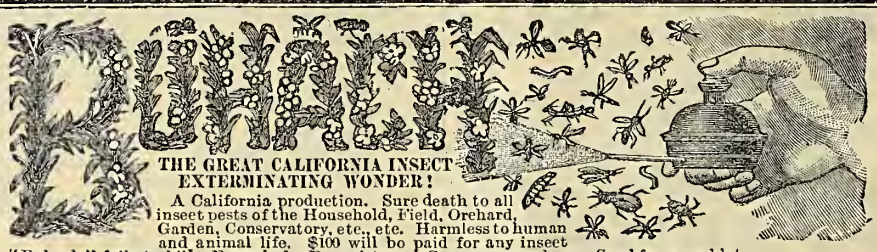
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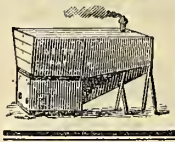
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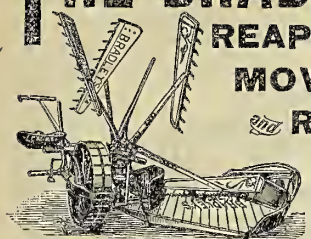
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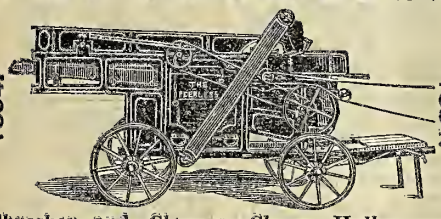
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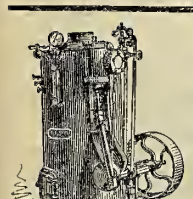
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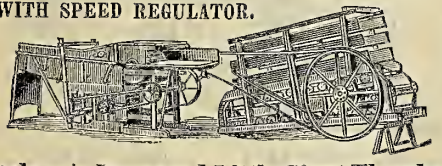


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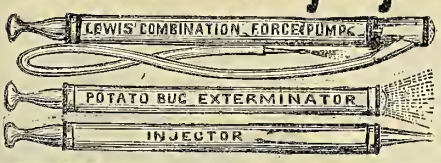
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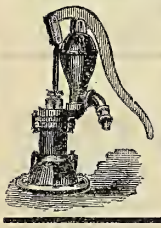
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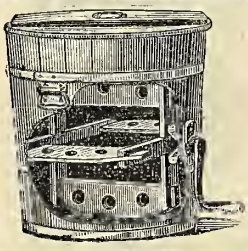
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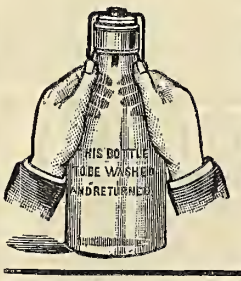
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PATENTS. Attorney's fee contingent on Success. Address **E. H. GELSTON & CO.,** **Washington, D. C.**

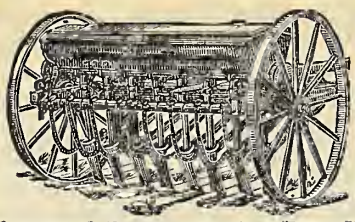
WORTH $100 to any farmer or dealer.

A. B. COHU & CO.'S
New Catalogue 1,000

Illustrations of latest Improved Labor-saving Implements and machines for the farm. By Mail, **20** cents. Send for it.

197 WATER STREET, N. Y.

The Pennsylvania Force-Feed



Fertilizer Grain Drill.

Warranted the most perfect Force-Feed Fertilizer Drill in existence. Send for circular, A. B. FARQUHAR, York, Pa.

Pennsylvania Agricultural Works, York, Pa.

Farquhar's Standard Engines & Saw Mills.

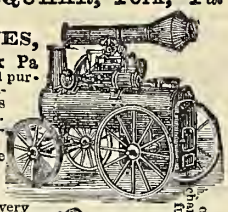


Address, A. B. FARQUHAR, York, Pa.

STEAM ENGINES,

A. B. FARQUHAR, York Pa

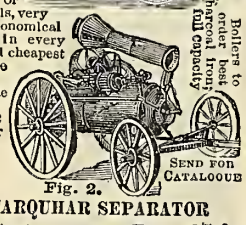
Cheapest and best for all purposes—simple, strong and durable. SAW, GRIST MILLS AND MACHINERY generally. Inquiries promptly answered. Send for Illustrated Catalogue



Vertical Engines, with or without wheels, very convenient, economical and complete in every detail, best and cheapest Vertical in the world.

Fig. 1. Fig. 1. is Engine in use. Fig. 2 ready for use.





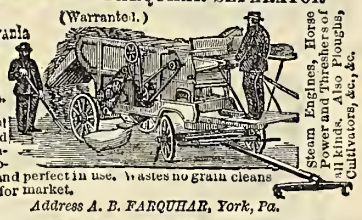
Boilers to order best charcoal iron, full capacity

SEND FOR CATALOGUE

Fig. 2.

THE FARQUHAR SEPARATOR

(Warranted.)



Pennsylvania Agricultural Works York, Pa.

Horse Powers, Threshing Machines, Straw-Preserving Threshers, Cultivators, &c.

Lightest draft and most simple, economical and perfect in use. Wastes no grain cleans it ready for market.

Address A. B. FARQUHAR, York, Pa.

☞ NO FARMER SHOULD BE WITHOUT

DARNELL'S PATENT

FURROWER AND MARKER! SEND FOR CIRCULAR

H. W. DOUGHTEN Manufact'r, Moorestown, (Burlington County), N. J.

NOW IN USE—36,989.



All persons say their goods are the best. We ask you to examine our Improved Keller Positive Force Feed, Grain, Seed and Fertilizing Drill and our Hay Rakes. They are as good as the best, and can be sold as cheap. All are warranted. Circulars mailed free. Newark Machine Co., Newark, Ohio. Eastern Branch House, Hagerstown, Md.

IMPROVED FARM IMPLEMENTS!

Improved Steam Engines, Best Railway and Lever Horse-Powers. Threshing Machines. Straw-Preserving Threshers, La Dow's Disc and Steel Spring Tooth Harrows. Eagle Sulky Horse Rakes. Cultivators, Feed Mills, Feed Steamers, etc. etc. WHEELER & MELICK CO., Albany, N. Y. Established 1830. Send for Illustrated Catalogue.

WHEAT CULTURE!

THE SEED DRILL REGULATOR



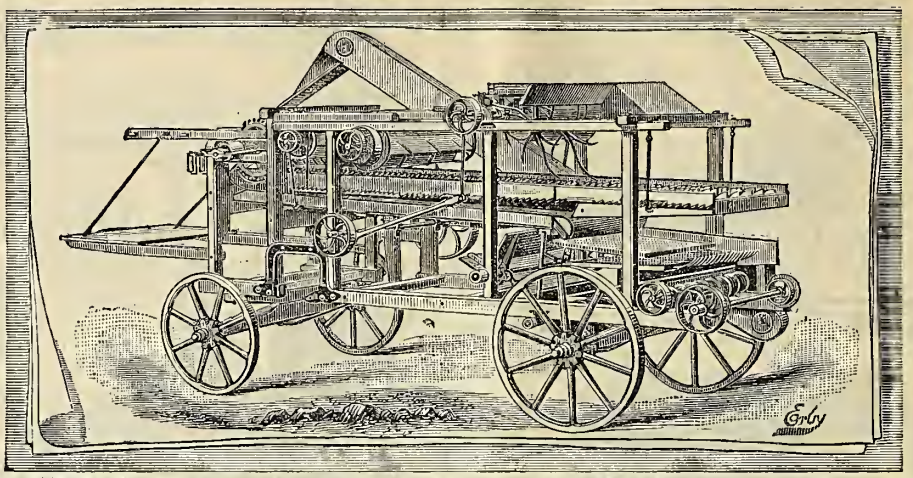
SAVES two-fifths of the Seed and one-half of the Fertilizer. Lightens the draft. Prevents clogging. Seed will come up several days sooner. 50 per cent. more seed will come up. Produces strong plants and large yield. Send for pamphlet "*How to Raise Wheat.*" Seed Drill Regulator Co. Lemont, Centre Co. Pa.

18,000 Carpenters and Farmers

now use our Late Make Filers to file saws, so they will cut faster than ever. Teeth all of equal size, Pitch and Bevel. Single one sent free on receipt of $2.50, where no Dealer keeps them for sale. A discount to Dealers or others wishing to sell. For Illustrated Circulars, *Testimonials* from persons who use them, etc., address E. ROTH & BRO., New Oxford, Penna. Post-Office Money Orders make payable at Gettysburg, Pa.

The "NEW MASSILLON" Thresher

ALWAYS IN THE LEAD.



IMPROVED FOR 1884.

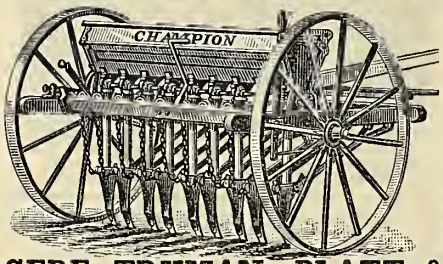
Also ENGINES, Portable, Traction and Skid. SAW MILLS, Light and Heavy, etc.

For full description send for our 1884 Catalogue, just out. Sent free to all interested. Name this paper, Address

RUSSELL & CO., Massillon, O.

Champion Grain and Fertilizer Drill.

POSITIVE FORCE FEED DISTRIBUTERS.



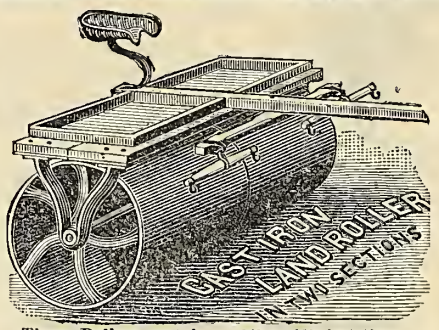
FERTILIZER ATTACHMENT

Unequalled, and is warranted to distribute accurately, evenly and easily *any* commercial fertilizer—wet or dry.

Draft light and easily handled. Construction simple. Materials and workmanship the best. We also make the WHIPPLE SPRING TOOTH SULKY AND FLOATING HARROWS, CULTIVATORS, &c.

These HARROWS are adapted for use on all kinds of soil, and are the best *pulverizers* known. No farmer can afford to be without one. Ample time given for trial before settlement. Attachments for sowing grain, grass-seed, and fertilizers, furnished with Sulky Harrows when desired. Send for pamphlets describing latest improvements in Harrows and Drills

GERE, TRUMAN, PLATT & CO., Owego, Tioga County, N. Y.



These Rollers cost from $40 to $60, but they are worth more than **six** of any other kind. They last for generations. For circulars address

DICKEY & PEASE, Manf'rs, Racine, Wis.

[This is the Firm that manufactures the Celebrated "Young Giant" Fanning Mills, known the world over. Also the "Peerless" Corn Sheller. Their goods are always first-class.]



Address, TAYLOR MFG. CO.

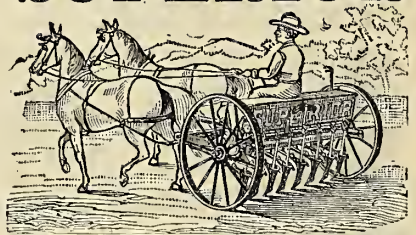
(Please Mention this Paper.) Chambersburg, Pa.

BINDER TWINE

TRADE MARK E

After a test of four years, has the unqualified endorsement of machine-makers and farmers throughout the grain-growing region. It will bind more grain to the pound, with fewer breaks, than any other twine made; is strong, even, free from bunches and knots; and by saving the time of the farmer, is worth double the price of other twines. Ask your agent for "DIAMOND E. BINDER TWINE," and take no other.

SUPERIOR



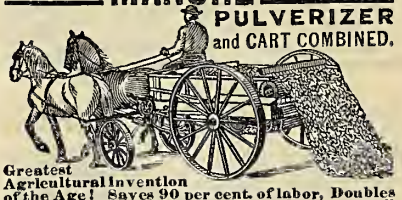
GRAIN DRILLS,

With Adjustable Force Feed, Spring Hoe, Hoe Pressure and Fertilizer Attachments.

Superior Broad-Cast Seeders, *Cider Mills, Hay Forks, Carriers and Equipments.* Descriptive Catalogues free.

The SUPERIOR DRILL CO. Springfield, O.

KEMP'S MANURE SPREADER PULVERIZER and CART COMBINED.



Greatest Agricultural Invention of the Age! Saves 90 per cent. of labor, Doubles the value of the Manure. Spreads evenly all kinds of manure, broadcast or in drill, in one-tenth time required by hand. Illustrated Catalogues free. KEMP & BURPEE MF'G CO., Syracuse, N. Y.



THE DAVIS STUMP PULLER

Received Centennial Medal.

Is now in use in Canada and nearly every part of the U. S.

LIFTS 20 to 50 TONS. Stands on runners, worked by two men. 5 Sizes. Prices $35 to $70. Circulars free. Manufactured by H. L. BENNETT, Westerville, Franklin Co. Ohio.



A "Fruit Tree Invigorator."

A correspondent who inquired about the medication of trees by introducing foreign substances into a hole bored in their trunks, was answered in March last. We there stated that the claim that trees could be medicated in this manner was an old one, and that we doubted if it ever had any useful application. In Bulletin No. 8, of the "Massachusetts State Agricultural Experiment Station," recently issued, we find an analysis of "The Phœnix Fruit Tree Invigorator," made at the Station. The analysis shows that the principal constituents are: Moisture, Sulphur, Lime, and Carbonic Acid, which made up ninety six per cent of the whole. The report says: "A mixture of an essentially corresponding composition, may be produced at an expense of from twelve to fifteen cents per pound at retail cost, by taking from forty to forty-two pounds of flowers of sulphur, and fifty-eight to sixty pounds of sifted wood ash."

Cures for Deafness.

Many inquiries are answered here. To begin with, before trying any mechanical appliance or any medicine for deafness, first ascertain the cause of the trouble. While a difficulty in hearing may be due to an accumulation of hardened ear-wax, or other causes that may be removed, deafness is often due to an obliteration of the ear-drum, or other derangement of the auditory apparatus, and is beyond remedy. When deafness is due to such causes, it is folly to expect relief from medicine of any kind. Audiphones, dentiphones, and other appliances to be held between the teeth, are sometimes useful as aids to hearing. These are sold at a high price, and being suited to particular cases only, cause much disappointment and complaint. A palm-leaf fan, or piece of card-board, held between the teeth, will usually answer as well as any of the "phones." Artificial ear-drums are simply impossible. Deaf persons should first consult a competent physician, and ascertain if the trouble in their case is curable.

Metal Indicators.—Divining Rods.

A letter from West Virginia asks us to send the writer at once "an instrument to hunt gold and silver, something like a magnetic needle." The superstition that certain persons were able, by means of a forked stick, to discover hidden precious metals and streams of water is a very old one. Even now, "water witching," as it is called, is practised in various parts of the country, and we have known persons of intelligence and of good sense in most matters, who think that water may be discovered by the use of a forked hazel twig, or divining rod. In the early days of California gold fever, some shrewd chaps, taking advantage of the general impression that gold and silver could be detected, offered a "gold indicator," which it was claimed would show the presence of the metal by the movement of a compass needle. Though these affairs were found to be perfectly valueless, the letter of our West Virginia correspondent shows that they are not forgotten, and the readiness with which people believe in the impossible. Iron is the only metal that will affect the magnetic needle (save one or two very rare ones), and there is no method of constructing a needle that will show the presence of gold or silver.

"Mutual Self-Endowment."

C. H. Ashford, Oconee Co., Ga., sends us a circular and writes: "I am satisfied that an expression of your opinion on its merits will be appreciated by a number of your readers, not only in Georgia, but in other States."—The document is issued by "The Mutual Self-Endowment and Benevolent Association of America." It appears that this "Association" has but little idea of the value of time or the shortness of life, when they expect people to read through eleven pages of a dull, imaginary dialogue, in order to find out what they propose. One or two pages of direct, pointed statement would serve the purpose better. The association with the long title originated at Longview, Gregg Co., Texas. It proposes to act as a life insurance company and an endowment office at the same time. The writer of the dialogue makes the scheme look plausible, but the first and important question with regard to all schemes of this kind, is as to the integrity and the responsibility of the managers of this Association. Of this we have no means of knowing. We would not advise any one to invest in this or any other Association, until fully satisfied of its stability, and its ability to fulfill its promises. So far as Life Insurance goes, there are several companies as safe as any human institution can be, in which one can insure his life with a feeling of absolute security.

Boston Silver Ware.

Boston is the headquarters of several concerns which vie with one another in the extravagance of the advertisements and circulars relating to the silver-plated wares they offer. One circular informs the recipient that his "name has been handed to us, together with first-class recommendations," etc., a fiction to start with. These circulars are so industriously scattered that the inquiries about the Boston concerns are very numerous. One of them styles itself "The Waltham Watch and Silver-plate Company," and a correspondent in Elgin County, Ont., is very indignant that the name of a well-known corporation, like the Waltham Watch Company, should be attached to such a trashy document. One circular cautions the public against dealing "with the shop over the way," in such a manner as to lead to the suspicion that both may be parts of one establishment. One concern explains its ability to sell its wares at the very low price on account of "a secret process" used in their manufacture—which is all bosh. Cheap ware means little silver, as the purchaser will soon find out in using it. In the purchase of plated ware the buyer is entirely in the power of the seller. There are in every city dealers whose word as to the quality of the articles is a sufficient guarantee. The only safety is in buying of such dealers. The floods of circulars, the useless machinery of "coupons," etc., all needlessly increase the expenses of doing business, and the purchaser is directly or indirectly made to pay their cost.

The "K. & K."

This has not, as some might suppose, any reference to the "Ku-Klux Klan," of several years ago, but is the trade-mark of a concern which professes great things in the way of curing diseases. A correspondent at Mulmur, Ont., sends us several clippings with reference to this K. & K. concern, which has its headquarters in Michigan, and asks our opinion about it. Our opinion is, that this K. & K. affair could not carry on its business in the State of New York, or in any other State which has laws to protect its citizens from quackery of all sorts. The advertisement makes a great spread over the costly instruments owned by the concern. It is a pity that there is no law against selling surgical instruments to irresponsible parties. The K. & K. concern now proposes to

SPECULATE IN CURES.

They propose to sign contracts of the "No cure, no pay" style. No physician of any standing in his profession, nor one fit to be employed, would be concerned in any arrangement that guarantees cures.

TO OUR NEWER SUBSCRIBERS.

There is nothing about which we have more frequent inquiries than about medical establishments, and medical men of various kinds. The fact that a physician advertises at all is against him, though there are some cases in which he may do so properly and legitimately. If one boasts that he has special skill in the treatment of particular diseases, set him down as a quack. If a man or concern advertises that he will perform a certain cure, or return the money if not cured, avoid the man or concern as a medical fraud.

"We Will Fight it in The Courts."

Say some makers of Oleomargarine and other bogus butter compounds, when asked their position as to the law recently passed by the Legislature of the State of New York, and approved by the Governor. This law prohibits "the manufacture of any oleaginous substance or substances, or any compound of the same, other than that produced from unadulterated milk, or the cream from the same, any article designed to take the place of butter or cheese produced from pure unadulterated milk, or cream from the same, nor shall sell or offer the same as an article of food." An exception is made in favor of pure skim cheese from pure skim milk.

THE PENALTY FOR VIOLATING THE LAW

is a fine of not less than one hundred, nor more than five hundred dollars, or imprisonment for not less than six months, nor more than one year, or both fine and imprisonment. The Act provides for a "New York State Dairy Commissioner," charged with enforcing the law.

THE GREAT DAIRY INTERESTS OF NEW YORK STATE

have had a hearing by the Legislature, and a law has been passed with full provisions for its enforcement, and dairymen in other States will watch the workings of the law with great interest. If the Oleomargarine makers propose to test the law in the courts, it is hoped that the Commissioner will give them an opportunity at once. We believe it to be a wise, just, and constitutional Act.

OUR POSITION AS TO OLEOMARGARINE,

from the first, has been, that it is not butter. If it can not be distinguished from butter, so much the worse. The whole success of these butter substitutes depends upon their sale as butter. The law requiring them to be branded with their proper names has been found useless. Now a more stringent Act, prohibiting both manufacture and sale, is passed and its efficacy is to be tested.

A FRAUD UPON THE FARMER AND HIS WIFE.

The farmer who takes all proper care in selecting his cows, and in providing them with proper shelter and food, and the farmer's wife, who prides herself upon the neatness of her dairy, and the excellence of her butter, are both brought into unfair competition with machine made mixtures of fat, which, whatever paid, so-called scientists may certify as to their wholesomeness, *are not butter*. The fact that were the stuff branded with its real name, not a pound could be sold, is sufficient answer to all allegations as to its quality and wholesome character—whatever the stuff may be,

IT IS NOT BUTTER.

If it could be sold for what it is, we should not object. As it is sold as butter, the law properly says it shall not be sold at all. The farmers and the purchasers are in earnest in this matter, and we are emphatically on the side of the farmers and the purchasers, and opposed to Oleomargarine and all other bogus butters with names that end in *ine*.

Among Our Contributors.

Salt is not a direct fertilizer.—*L. H. Bailey.*

It pays to thin fruit when young.—*Prof. W. J. Beal.*

Of incubators, the best need watching.—*Col. M. C. Weld.*

There are strawberries, and strawberries,—*Dr. George Thurber.*

There is perhaps one farmer in ten that keeps records.—*Prof. W. A. Henry.*

A padlock is not an unnecessary ornament to a duck-house.—*D. Z. Evans.*

Harmony of color is of the first importance in house furnishing.—*Ethel Stone.*

Ensilage is well deserving of many further trials by practical farmers.—*Prof. J. M. McBryde.*

The secret of success in keeping large numbers of poultry, is not to crowd them.—*P. H. Jacobs.*

The horse's shoe should be accurately fitted to the foot, and not the foot to the shoe.—*Dr. D. D. Slade.*

Every farmer should teach his children to cherish and protect their feathered friends.—*W. D. Boynton.*

It will rarely be possible to have work done successfully by hand help alone.—*Prof. S. R. Thompson.*

All stabled animals should stand upon floors as nearly level as is consistent with cleanliness.—*L. D. Snook.*

The soil and not the atmosphere, is the main source of the nitrogen which we find in our crops,—*Sir J. B. Lawes.*

On fruitful soils in good climates, the best people not only remain, but leave their children.—*George Geddes.*

Nearly all the processes of productive industry, are only successive steps in the process of condensation.—*Pres. A. S. Welch.*

If I git a pail full of milk, the ceow kicks it over, I'm teetotally undone forever Squire, and its no use to farm it.—*Tim Bunker.*

May not the simple adhesion of the liquid to the butter globule, have been mistaken for the investing membrane?—*Hon. X. A. Willard.*

In the hog family, as in the human, too much idleness, and too long-continued high-keeping, entails evil consequences.—*Hon. F. D. Coburn.*

I should feel highly gratified to see our farmers give evidence of knowing their rights, and of daring to take and enjoy them.—*F. D. Curtis.*

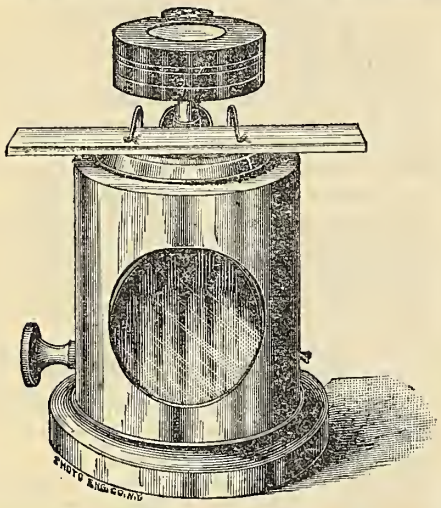
The addition of green feed, in some form, to the winter ration of our farm animals, will be found advantageous for many reasons.—*Dr. M. Miles.*

Carp can be made a toothsome feature of the dinner-table, if the mistress of the kitchen comprehends the mysteries of the sauce boat.—*R. B. Roosevelt.*

Each kind of animal should be allotted the foods best suited to its special requirements, and to the organs of digestion peculiar to its species.—*Prof. F. H. Storer.*

The Agriculturist's Microscopes.

We continue to receive the most gratifying compliments as to the superior quality and handsome appearance of the New *American Agriculturist* Mi-



croscope, which we have had expressly manufactured for the friends and workers of the *American Agriculturist*. Here are some sample replies:

NEW SMYRNA, Fla., April 30, 1884.
I have received my Microscope, and am more than paid for the money that I gave for it. It is just what I have been wanting for some time, and it is just what every one needs." J. E. THOMPSON.

WETHERSFIELD, CT., May 20, 1884.
"I would also acknowledge the receipt of the Microscope, which came safely to hand, and is a very neat, tasty little instrument." J. W. GRISWOLD.

ITHACA, N. Y., May 19, 1884.
"I received the Compound Microscope to-day, and after a careful examination, I can cheerfully say it is better than my highest expectations. As to the quality of work on it, the makers' name is a sufficient guarantee for that. Please therefor, accept my thanks."
H. W. SMITH.

YPSILANTI, MICH., May 19, 1884.
"The instrument exceeds anything I ever saw for the amount of money invested in it. It is certainly a marvel."
PROF. J. H. HOPKINS.

FARMLAND, IND., June 4, 1884.
"The Microscope sent by mail fully meets my expectations." N. W. WRIGHT.

EWART, Iowa, April 9, 1884.
Please find enclosed $1.25 for one of your Simple Microscopes. I am a subscriber to your good old journal, and have the same confidence in you that I would have in a brother. I will get up a club for your paper in some future time. DANIEL F. WHITE.

This is the season of the year when these Microscopes can be employed to a great advantage by farmers, in very many ways. In fact, one of these Microscopes ought to pay a farmer ten times its cost every year, in the examination of bugs and insects of various kinds, which are injurious to vegetation.

The *American Agriculturist* for March, contains a full description of this new and beautiful Microscope.

If you have not this number of the paper, and would like to see the description, write to us, and we will forward it to you. This Microscope is sent, delivered free, by us, to any part of the United States and Territories for $2—and delivered free to any actual subscriber of the *American Agriculturist* for 1884, for $1.25. Furthermore, we will present one, delivered free, and send the *American Agriculturist* to any new subscriber, post-paid, for $2. Still further, we will present this Microscope to any present subscriber, delivered free to him, if he sends us two new subscribers to the *American Agriculturist* for one year, at $1.50 each.

Something for all Old Subscribers.

We are now preparing a special edition of the *American Agriculturist* for all persons who have been subscribers to the *American Agriculturist* within a period of ten years, and who are not *now* subscribers. This copy of the *Agriculturist* will contain matter of great value to every such old subscriber, in fact matter that he will read with the liveliest interest. Will every present subscriber, on seeing this, please notify every individual in his vicinity, who, at any time, has been a subscriber to the *American Agriculturist*, and is not now one. By so doing, he will greatly oblige the Publishers.

Getting up Clubs for the American Agriculturist.

You need not wait until winter before raising your club for the *American Agriculturist*, but begin now. Subscriptions can begin with any number. We will forward Specimen copies to every one who wishes to raise a club.

BE PROMPT, please, in informing us if there is any delay or trouble in receiving your paper, or answer to any complaints or inquiries sent us. The *American Agriculturist* goes to press regularly every month, and it should reach you on the same day every month. You will confer a favor if you will immediately write us, if there is the slightest delay in its receipt.

Progress and Prosperity.

(*From the "Christian Union," N. Y., May 22.*)

The *American Agriculturist* is to be congratulated on the evident signs of progress and prosperity which are found in its pages. It represents the best experimental and writing talent in the line of Agriculture in this country, and shows in all its departments the tireless energy of Mr. David W. Judd, who is now at the head of the Orange Judd Company.

Friends of Agriculture.

Mr. Lawson Valentine, who for some months has been familiarizing himself with agricultural modes and methods in England and France, visiting Lawes and Gilberts' establishment, and other interesting points, will return to the United States with a rich store of knowledge to apply to his generous acres at Houghton Farm.

Col. M. C. Weld, the "Among the Farmers" man, true to his title, is now off for a distant fortnight cruise. He goes as far north as Hamilton, Ont., and, swinging to the southward, will return with a grip-sack full of notes by the way for his host of admiring readers. Col. Weld has a great fondness for fine farm animals, and discovers more defects in a herd than most men. He, however, does not let a "good point" pass unnoticed or unpraised.

Dr. Charles H. Shinn, is one of California's young horticultural men who believe they can so mingle literature with out-door life as to make it profitable in more senses than one. Among the leaders of the fruit interests in the Golden State, he left his western home and spent last year in John Hopkins' University in the study of language, to become the better able to write clearly and well upon his favorite horticultural subjects. He promises to give our readers the results of his added experience and study.

Dr. Manly Miles, Professor of Agriculture at Amherst Agricultural College, made us a pleasant call, during which we learned that he intends to spend a portion of his vacation in the Michigan "Peach Belt," studying the important subject of yellows in the peach. Dr. Miles has thoroughly equipped himself with microscopes for this difficult task, and we hope before the year closes to give our readers some more light upon a question, that now is as dark as it is vital to the fruit growers of the Peninsular State.

Mr. A. W. Stuart, of Australia, is now visiting the United States, and studying the subject of silos and ensilage, with a view of introducing these methods of preserving fodder, into his own country, in their perfected forms. We have taken pleasure in directing Mr. Stuart to some of our most successful farmers, who are feeding ensilage almost exclusively to their large herds. It is justly a matter of no little pride to Americans, that borrowing a method from an old European country, we have so perfected it, as in a few years time to become the teachers of the whole world.

Cyrus H. McCormick, who made the first successful Reaper, has now closed his life-work at the advance age of seventy-five. It is but a little over thirty years since that strange looking machine, at the first Worlds' Fair convinced England and all Europe, that reaping by machinery was possible. The influence of this invention upon the agriculture of this country and of the world is incalculable, and it is gratifying to know that unlike many inventors who have benefited their fellows, Mr. McCormick received in return something more substantial than thanks. While there are many other and excellent reapers, the name of McCormick will stand as the pioneer of all, and occupies a proud position as one of the benefactors of agriculture.

Rev. E. P. Roe, the writer on small fruits and other topics, having decided to devote his entire attention to literature, pure and simple, has disposed of his Nurseries at Cornwall-on-the-Hudson, to Mr. H. G. Comey, long his confidant, and able first assistant.

Fountain Pumps.—Our nearest neighbor has some fine large cherry trees badly infested with aphides (plant lice), and we have recommended him to get a force pump, and spray the infested leaves and branches with a decotion of tobacco water. He needs the pump for washing the windows of his dwelling, watering the young garden vegetables and flower beds, and for many other purposes. The Fountain Pumps which are made by J. A. Whitman, Providence, R. I., have a world-wide reputation.

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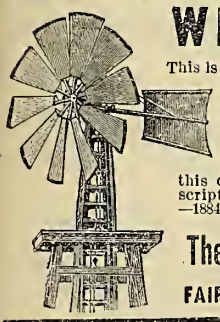
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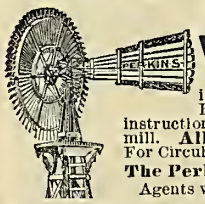
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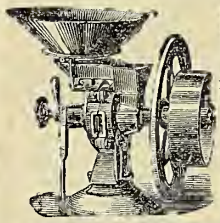
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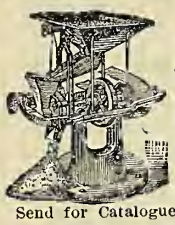
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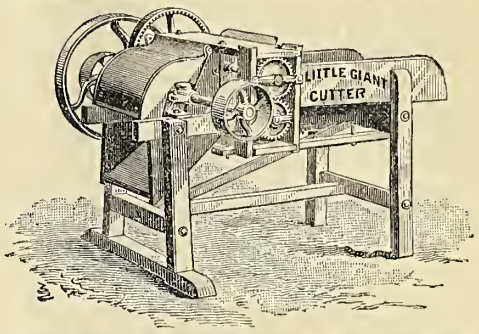
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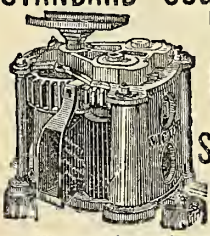


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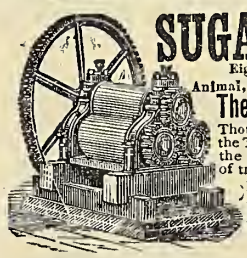
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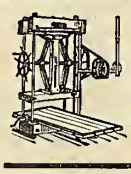
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"Our Friend, the Dog," is the taking title of a most attractive book, by Gordon Stables, C. M., M. D., etc. Loudon, England. The sub-title informs us, that it is "A Complete Guide to the Points and Properties of all known Breeds, and to their Successful Management in Health and Disease." The author has one important qualification for his task—he is in love with his subject, and writes so earnestly as to inspire his reader with a similar love. He invests the most common-place matters with a peculiar charm, and while anecdote and poetry are brought in to embellish the pages, there is a solid substratum of fact, and such a vein of common sense pervading all he tells us about dogs, and how to manage them, that he inspires us with confidence in his teachings. The characters of the numerous breeds are sharply given, and besides the topics usually treated of in such works, he gives much needed information on points generally overlooked by authors who write about "Our Friend, the Dog." One of these of growing importance in this country, is useful hints about exhibiting at Dog Shows, and some excellent advice is given to the managers of Shows, which indicates that human nature is much the same on both sides of the Atlantic. A number of chapters are devoted to "Clubs." These are very full of just the information needed by those who would organize Dog and Kennel Clubs in this country. The Constitutions and Rules adopted by the leading Associations of England will be very useful. The work is abundantly illustrated by engravings, not only of dogs, but of the various kennels and other appliances. The leading breeds are illustrated to a great extent by portraits of noted representatives, a historical sketch being given of the animals in a chapter on illustrations.

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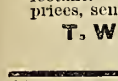
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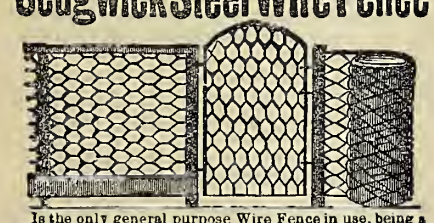
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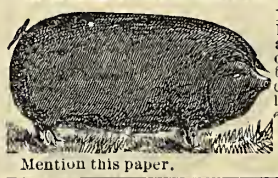


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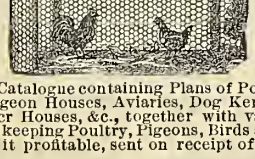
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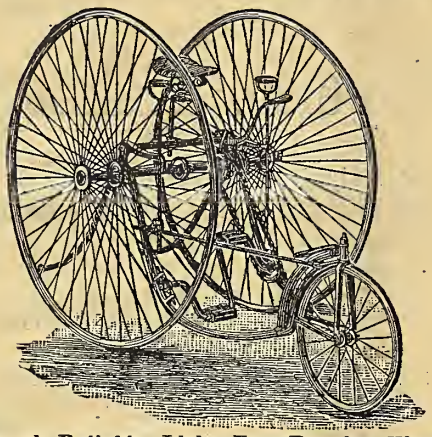
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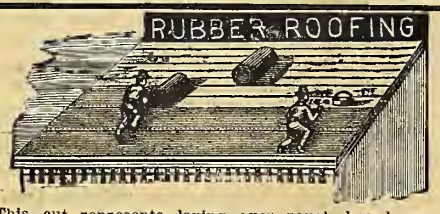
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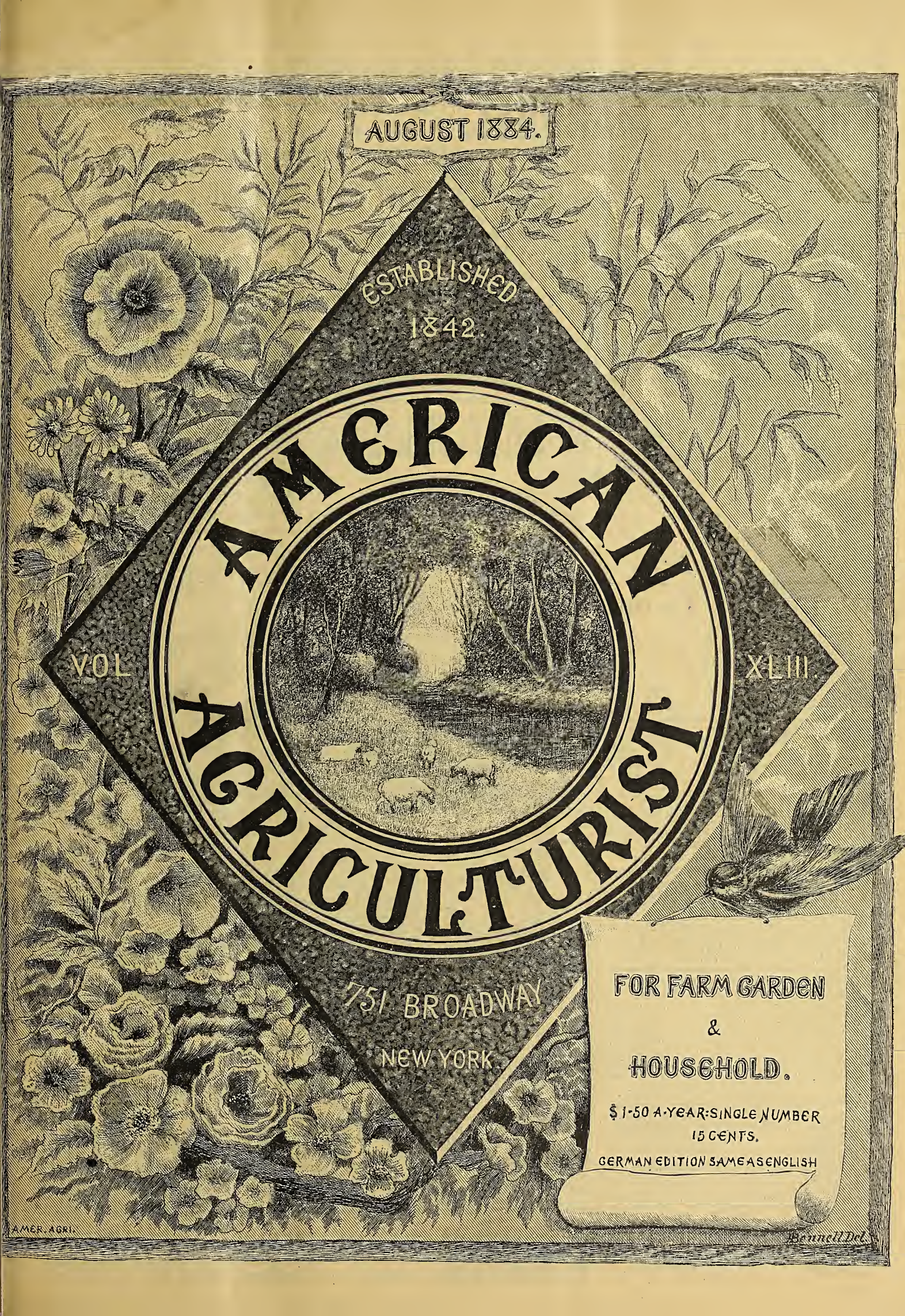
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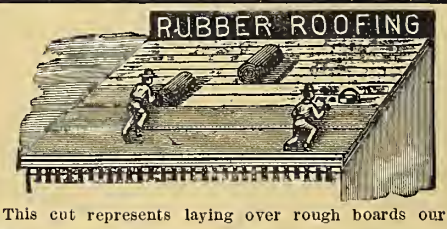
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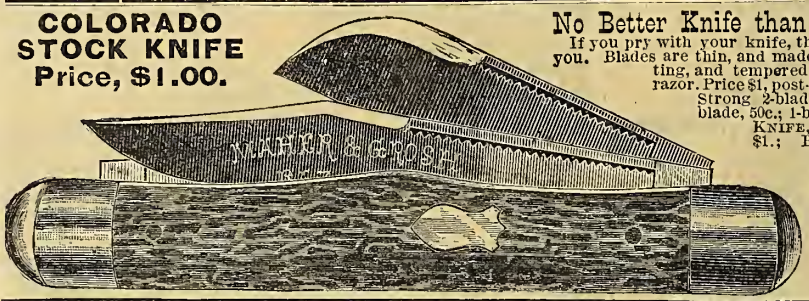
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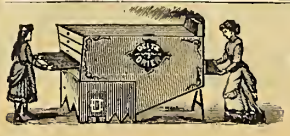


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Contents of this Number.

Among the Farmers 332
Animals, Feeding, and Care of Farm 328
Animal Ailments 324
August Days 318
Australian Wool Farming 9 *Illustrations* .330-331
Bee Notes for August *Illustrated*.. 320

Boys' and Girls' Columns:
An Adventure with Bruin *Illustrated*.. 342
The Doctor's Talks 5 *Illustrations*.. 343
Tree Toads or Tree Frogs 2 *Illustrations*.. 344
The Floral Wedding 344
Rebus *Illustrated*.. 344
Breeds, The Rival Beef 335
Bucket, A Bored Well *Illustrated*.. 326
Cabbage Fly and its Relatives *Illustrated*.. 327
Cats on the Farm 328
Cattle, Guernsey 2 *Illustrations*.. 321
Cattle for the South 335
Cellars, Above-ground 324
Celery, Should Farmers Grow 338
Celery, A New, The "White Plume." *Illustrated*.. 319
Chat with Readers 325
Chenille, Floral—Spraguea *Illustrated*.. 337
Chicks, Hurrying the 324
Corn-House and Granary 5 *Illustrations*.. 333
Corn, How, is Hybridized? 325
Dog Law 326
Fairs, Our List of 324
Farm Work for the Month *Illustrated*.. 318
Fishery Commission, The New York *Illustrated*.. 327
Fruit Harvest, The 339
Fruit Picker, A Home-Made 325
Garden, Flower and Lawn 319
Garden, Kitchen and Market 319
Grape Vine, Summer Pruning the 338
Greenhouse and Window Plants 319
Grounds Irregular, The Management of 3 *Ills*.. 339
Hens, Egg Eating *Illustrated*.. 322
Hens Picking Feathers 335
Horse Breeding, Valuable Points in 335
Horses, Do not Gall the 328
Horses, How and When to Shoe 322
Horses, Sloping Shoulders in Draft 2 *Ills*.. 335
House, A, for $100 3 *Illustrations*.. 329

Household.
A Bedroom in Cretonne *Illustrated*.. 340
Hanging Shelves 340
Notes on Present Styles of Dress 340
Hanging a Broom *Illustrated*.. 340
A Flour and Meal Closet *Illustrated*.. 340
The Hands 340
A Laundry Cushion *Illustrated*.. 341
A Word to Parents 341
The Buffalo Moth 341
Light Work in Mid-Summer 3 *Illustrations*.. 341
A Lead Pencil Sharpener 341
Insect, A Curious 324
Insects, Enemy to Maple Trees *Illustrated*.. 322
Lady Birds and their Larvæ *Illustrated*.. 337
Leaves, Variations in the, of Trees 4 *Ills*.. 338
Melons for Market 320
Money-Crop for Next Spring 329
Moon, The Harvest *Illustration*.. 317
Notes from the Pines *Illustrated*.. 336
Notes on Live Stock 318
Orchard and Fruit Garden 319
Pecan Nut—Its Cultivation 339
Plow Plank, A *Illustrated*.. 326
Potatoes, Save the 336
Quince, Improvement in the—Meech's Prolific.. *Ills*.. 328
Rats and Flies 324
Rose-bugs and Roses 324
Salt upon Animals, Effect of 324
Silk-worm Cocoonery, A *Illustrated*.. 323
Snow Plant of the Sierra Nevada *Illustrated*.. 336
Strawberry, A good, Coming—The "Banquet" .. *Ill*.. 323
Strawberries, Fertilizer for 324
Stump—Saltpetre and Kerosene 325
Stumps, Removing 332
Sugar from Sorghum, A New Process of Extracting. 2 *Illustrations* 320
Timber, The Best Time to Cut 333
Toads, Do They do Harm? 324
Tomatoes and Cancer 324
Walks and Talks on the Farm 334
Water Cresses 324
Weeds, Kill the Late 326
Weevel, A New and Serious Strawberry *Ill*... 323
Wheat, Getting Ready to Sow 319
Wire Tightener, A *Illustrated*... 326

For Humbug exposures, book reviews, business announcements, and other matters of special interest, see the last pages of this number of the Am. Agriculturist.

August Days.

'Tis summer prime, when the noiseless air
In perfumed chalice lies,
And the bee goes by with a lazy hum,
Beneath the sleeping skies:
When the brook is low, and the ripples bright,
As down the stream they go,
The pebbles are dry on the upper side,
And dark and wet below.

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The Harvest Moon.

Husbandmen in ancient times looked upon the "unusual behavior" of the Harvest Moon, as due to a Divine dispensation in their favor, for the purpose of affording them abundant light to enable them to complete the labors of the harvest. At other times the moon rises about forty-eight minutes later than it did on the previous night, but the harvest moon rises nearly at sunset, and at about the same time for several evenings in succession. The astronomers dispose of the belief of the ancient farmers, that it was a dispensation for their special benefit, by showing that so long as the motions of the earth and the moon are as at present, the latter cannot help rising in such a manner as to produce the harvest moon. The influence of the moon in various worldly affairs has been a matter of common belief from very early times, and there are still those who sow seeds, cut timber, kill pigs, etc., at a certain time of the moon. The rural population of England have several fancies regarding the harvest moon; among others, that it is the proper time for maidens to learn of their future through dreams. The harvest moon dreams should surely be favorable, as they require no little trouble in the way of preparation for them. The lass who would learn what the future has in store for her in the way of matrimony, must open a prayer book at the marriage service, and finding the words: "With this ring I thee wed," places upon them a ring, a key, a flower, and a sprig of willow; besides these, bread, cake, and other things, including cards, are laid in the book, which is wrapped in muslin and placed under the pillow. If she dreams of a ring, marriage will follow; if of willow, her lover will be treacherous, and there is a proper interpretation for whatever may be the subject of the dream. Should a goose be dreamed of, the unfortunate dreamer will marry more than once. Though the farmer in former times was grateful for the harvest moon, as it prolonged his working day, the farmer of to-day does not need her light for this purpose. Thanks to modern inventions, the days of the harvest are abundantly long for their lessened labors. Instead of taking a practical work-day view of the harvest moon, he can, with gratefnl heart for abundant crops, give himself up to a full enjoyment of the scene, when

"A dewy freshness fills the silent air;
No mist obscures, nor cloud, nor speck, nor stain,
Breaks the serene of heaven:
In full orbed glory, yonder moon divine
Rolls through the dark-blue depths."

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Ethel Stone, N. J.
L. A. Beatty, Ill.
Mary Hadlein, Miss.
Lisle Lester, Cal.
B. Haymond, W. Va.

See page 350 for items of special interest.



Act.
Think.
Consult.
Experiment.
Make repairs..
Carry a note book.
Watch the markets.
Favor the seed-corn hills.
Manure the back fields!
Keep up the flow of milk.
Make repairs in spare hours.
Superior work pays us the best.
Above all things avoid foul seed.
Gas lime should not be used fresh..
Idle land is the weeds' opportunity.
Fowls profit by a run in the stubble.
Wheat after oats is a faulty practice.
Whitewash will cleanse and sweeten.
August pigs make holiday small pork.
Do not let your insurance policy expire.
The damages by rats exceed those by fire.
Sow white turnip seed for fine fall fodder.
Wash the horses feet and legs every night.
Success is largely a matter of small details.
Roll the ground before and not after seeding.
Good seed and good soil are a good beginning.
Farm animals well summered are half wintered.

Help out the dried up pastures with green fodder.

Thinning the root crops means more tons to the acre.

Clean, oil, and store all the implements no longer in use.

Get out the year's supply of muck while the beds are dry.

Build temporary pasture shelter in airy parts of the fields..

Weeds when they go to seed curse the land that grew them.

The general purpose animal is superior only in its versatility.

Let the bumble bees live and thus increase the yield of clover seed.

A drain to be a profitable investment must be a permanent improvement.

Fall fallowing cleans the land and brings it into fine condition for spring crops.

Neglected fence rows are like a leaden weight upon the neck of clean field culture.

A farmer's bank account may grow at the expense of his manure heap and grain crops.

A clean, cool, ventilated stable, free from flies, is a suitable lodging for the tired work horse.

The possibilities of a farm are measured by the quantity and quality of brains which run it.

Amid all the toil of midsummer, do not forget to do a little careful work for the coming county fair.

Superior pork made from freshly fallen wormy apples is very cleansing to an insect-infested orchard.

A root crop is very humble, but as a foundation for a judicious rotation it will support the symmetrical superstructure of profitable mixed farming.

Orchard and Fruit Garden.

Decide whether to dispose of surplus and inferior fruit, by making it into vinegar, or by drying or evaporating it.....Trees will be broken by careless pickers; saw off all injured limbs....The Apple-worm may be diminished by picking up and destroying fallen fruit, or allowing the pigs to do it. Bands of carpet, bagging, or other fabric, fastened around the trunks of apple trees with a single long tack, will catch many Apple-worms. Examine weekly and kill....If trees set last spring suffer from drouth, mulch them, or keep the soil loose. The Fall Web-worm spins its nest in summer also. At its first appearance, cut away the twig to which the nest is attached, and crush the worms. Young trees may have their shape controlled by pinching the ends of shoots that grow too vigorously....When the Blackberry and Raspberry crops are off, cut away the canes that have borne fruit. The new stems of Blackberries should be stopped when five feet high, those of Raspberries at three or four feet....Keep strawberry beds free of weeds. Plant new beds with plants rooted in pots....Whitish spots on the underside of grape leaves are mildew. Dust sulphur, with a sulphur-bellows at once. Large caterpillars and beetles must be hand-picked. Continue to pinch laterals.

Market and Kitchen Garden.

The hotter and drier the weather, the faster the "pussley" grows. Hoe up and feed it to the pigs. Vegetables for market should be put up neatly. Beets and other roots must be washed and tied in bunches....Plant Bush-beans for late crops. Pinch off the ends of the vines of Limas when they reach the tops of the poles.....Beets, carrots, and other roots should be hoed until the tops prevent....The fodder from sweet-corn may be greatly increased by cutting up the stalks as soon as the ears are gathered. Cultivate well.....Gather Cucumbers for pickles as soon as they are of the desired size. Keep the fruit of Egg-plants from the ground with a wisp of straw or hay....As Melons approach maturity, turn to secure even ripening.....Do not allow Sweet-potato vines to take root at the joints; move them at each hoeing....Onions are known to be ripe when a large share of the tops fall over. Pull, dry thoroughly, cut off the tops, and sell, or store in a dry, cool place, spreading thinly....Cultivate and hoe among the Squashes as long as the vines will allow. Permit the vines to take root at the joints.....Late Cabbages and Cauliflowers need to be kept free from weeds.....Turnips are to be sown; the ground from which the early potatoes were removed is excellent for them. Sow Rutabagas early this month, and the Aberdeen and Yellow Stone any time before September first....Tomatoes, foliage, stems, and fruit are devoured by a large green worm or caterpillar, which can neither bite nor sting, despite its horn. Wherever its abundant droppings are seen on the ground, hunt on the vine for the worm. Keep the vines tied up to the trellis, and cut away all badly shaped fruit.

Flower Garden and Lawn.

Do not mow the lawn too often in hot and dry weather. Keep the margins of beds, cut in lawns, well defined. Run a sharp spade into the soil, along the margins of the beds, to cut off grass roots....Ribbon or other beds planted in designs, need care to keep the lines between the kinds of plants distinct, and all at a uniform hight; this may be done by pinching and the use of the knife. Sticks and strings will be needed by Dahlias, Gladiolus, and other tall plants. Keep the supports out of sight....Remove flowers and flower-clusters as soon as they begin to fade, unless seeds are to be saved....As soon as flowers on the summer-blooming roses fall, cut back the shoot to a strong bud ...Chrysanthemums should be brought into shape by pinching. When buds are formed, pot those intended for house-blooming. Look out for caterpillars and plant-lice....Lilies, especially the tall growers, may need stakes. If thin spots appear on the leaves, a caterpillar will be found on the under side. If seeds are not wanted, cut away the young pods....Carnations, to bloom in winter, should have flower stems cut away as they appear.

Greenhouse and Window Plants.

Paint, glaze, and repair the greenhouses....Secure pots, soil, sand, moss, and whatever else may be needed for winter use....Care for the plants in pots out of doors as directed in former months. Make cuttings of plants that were turned into the open ground....Camellias and other plants with thick leaves must not be exposed to the full sun. Fumigate house plants with tobacco smoke.

A New Celery.—The "White Plume."

No other agencies have done so much to popularize celery culture and make it profitable, as this periodical. Some twenty years ago, in the pages of the *American Agriculturist*, and soon after in our volume, "Gardening for Profit," by Peter Henderson, were first made known the improved methods of raising celery and keeping it, practised by the gardeners who supply the markets of New York City. The publication of these methods completely revolutionized, and gave a new impetus to, celery culture throughout the country. Only a few gardeners, who left the old country too late in life to learn new ways, continued to follow the former method of planting in trenches. Not only were these new methods of treating the crop of great service to growers of celery, but an almost equal



THE "WHITE PLUME" CELERY.

benefit resulted from the advocacy of the dwarf varieties, which grow to the hight of about two feet or less, in place of the tall kinds reaching the hight of three feet or more. The tall kinds require the growing of a foot or more of useless leaves, involving extra labor in their culture and in storing the plants. The dwarf varieties afforded as much of eatable stalk as the tall kinds, while they could be produced at much less cost. A few years ago, a New York grower of celery, noticed in a bed of seedlings of one of the dwarf varieties, a single plant, that in the shape of its foliage and in its habit of growth, was very different from all the other plants in the bed. This singular plant was carefully preserved, and was found to perpetuate its peculiarities by seed, and thus became the parent of a distinct new variety, which has been named the "White Plume." The name was suggested by the form of the inner leaves, which being greatly sub-divided and feather-like, form a beautiful ornament for the table. But this is not the most marked peculiarity of the "White Plume." The broad outer leaf-stalks grow in such an upright and compact manner, that the inner stalks are so compressed and deprived of light, that the plant becomes self-blanching. This peculiarity of the plant greatly lessens the labor required by the celery crop. In the beginning the "White Plume" requires the attention that must be given to all other kinds of celery; i. e., the plants must be raised and transplanted to the rows where they are to grow. With ordinary kinds of celery, after the plants have nearly made their growth, they are "handled," that is, the leaves are brought into an upright position, and kept there by pressing the soil firmly against the base of the leaves with the hands. After this, to blanch the celery, the earth must be banked upon each side of the row, to exclude the light. With the "White Plume," the labor stops with the "handling," the peculiar growth of the plant completing the blanching, as shown in the engraving. The "White Plume" promises to still more simplify celery culture. Its history is especially interesting, as showing the importance of noticing any marked variations among cultivated plants, and if these promise to be of value, of caring for and propagating them.

Getting Ready to Sow Winter Wheat.

JOSEPH HARRIS.

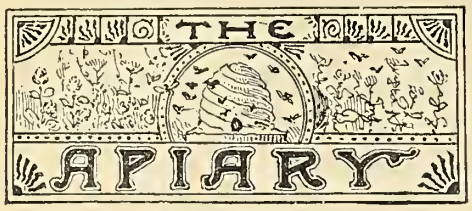
If winter wheat is to be sown after early oats, peas, beans, early potatoes, or corn-fodder, the moment the crop is off the ground, stick in the plow, or gang, or cultivator. Do not wait for rain. The weeds and stubble will pump up more water from the soil than any ordinary rainfall at this season will be likely to furnish. If you plow, or in anywise work the land, it will not only destroy the weeds and check the rapid evaporation of water, but should we have a shower, the rain will penetrate deeper into the worked soil, and render it soft and mellow. We have everything to gain and nothing to lose by promptness in plowing immediately after the previous crop has been harvested.

In four years out of five, the principal difficulty in sowing winter wheat in proper season is to get the soil moist enough to cause the wheat to germinate vigorously and evenly. We must recollect that the soil, even during a severe drouth, contains in the first two or three feet a great many thousand gallons of water per acre, and still more at a greater depth. This water is constantly rising towards the surface. Any growing plant pumps it up out of the soil, and evaporates it into the atmosphere. The amount of water thus evaporated is enormous. The bare soil evaporates water from the surface as long as there is any to evaporate, but the loss of water from a bare soil is nothing in comparison with the loss on land upon which plants are growing.

In the winter wheat section of Western New York we sow our wheat from the 1st to the 20th of September. It is ready to cut from the first week in July to the first of August, varying greatly in this respect according to the season. As we go South, wheat is sown later in the autumn, and is ready to harvest earlier in the summer.

Where the Hessian fly is troublesome, we have to avoid early sowing in the autumn. The fly lays its eggs in the young wheat plants in the autumn, and late sowing is one of the remedies. On the other hand, when wheat is liable to injury from the Midge, we have to avoid late sowing. The Midge flies lay their eggs in the ears of wheat when it is in blossom, and an early crop of wheat is far less liable to injury than a late crop.

Fortunately neither the Hessian fly nor the Midge has done much damage of late years, and the tendency among our best wheat-growers is towards earlier sowing. After the first of September it is thought desirable to sow as soon as the soil can be got sufficiently moist and mellow. It is just here where promptness, good judgment and science are all requisite. Rain will help us, but it will help us still more if we go to work as though no rain was expected. As we said before, there is water enough in the soil, but it is not near enough the surface to cause the seed to germinate. What we have to do is to bury all the weeds, stubble, and growing plants, and keep the surface soil fine by the frequent use of the cultivator, harrow, and roller. We know this is easier said than done—but on our strong wheat land it is the general experience that much of our success will depend on our ability to get the wheat well started in the early autumn.

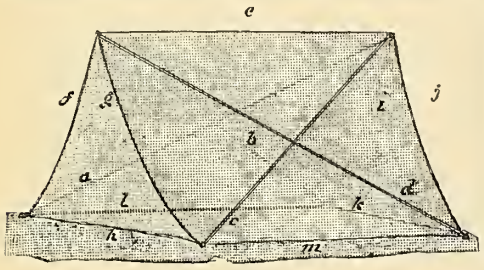


Bee Notes for August.

W. Z. HUTCHINSON.

HOW TO MANAGE ROBBER BEES.—At the close of a honey-flow, and especially the bass-wood honey harvest, bees are inclined to rob. Let a hive be open five minutes at such a time, and a horde of hungry robbers are ready to pounce upon any exposed portions of the combs. A part of the honey crop is usually upon the hives at the close of the harvest, and the task of removing it is attended with "unpleasantness," and sometimes with loss. The queen breeder must necessarily open hives and handle combs, whether robbers trouble or not. When examining the bees in preparing them for winter, robbers are often particularly troublesome. To save themselves from these annoyances, many bee-keepers have a small tent, in which they can perform the work of the apiary. This consists of a light frame-work covered with mosquito netting, easily carried from place to place, and set over the hives that are to be opened. The simplest and most convenient style of bee-tent known to the writer is shown in the illustration given below.

The strips *a*, *b*, *c*, and *d*, are straight-grained pine, eight feet long, one inch thick, and an inch and one-fourth wide. They are held together where they cross by ordinary wood-screws. Their upper ends are tied together with stout twine, that passes through small holes. The "ridge pole" is a piece of heavy tarred twine. An inch from the bottom of each strip an ordinary wood-screw is



A BEE-TENT.

driven in until its head projects about half an inch. Upon each screw is placed a small iron ring, and to these rings are attached the cords of tarred twine, *f*, *g*, *h*, *i*, *j*, *k*, *l*, and *m*, which complete the frame-work of the tent. The upper ends of the wooden pieces are covered with sheep skin, to prevent them from punching holes in the mosquito bar covering. To keep the wind from upsetting the tent, the lower ends of the wooden strips are furnished with curved points of heavy wire, two or three inches long, that can be thrust into the ground. When the tent is in position, the bee-keeper raises one side, crawls under, and performs his task unmolested by the buzzing crowd outside. By slipping the iron rings, to which the cords are attached, off the screws, the wooden bars can be shut up like a pair of shears, thereby folding the whole bee-tent as easily as an umbrella.

GRADING, CRATING, AND SHIPPING HONEY.—The first grade should consist of only perfect, white combs, and it is the writer's opinion that, in many instances, there should be only this one grade of comb-honey. Some bee-keepers make a second grade of unfinished sections, but if the apiary is rightly managed, there will be but few of these at the close of the season, and it is better to extract the honey from them, and keep the combs until another season. Honey that is too dark for the first grade, should not, as a general thing, be stored in sections, as it is usually more profitable to extract it. Before crating, sections should be scraped clean of propolis. A small crate is preferable; it is more easily handled, and less liable to be "dumped," while it sometimes enables the retailer to sell a whole crate of honey at once. Sections should be placed only one tier high in shipping crates; because if any combs of the upper tier become injured, the honey drips down and soils those of the lower tier. Some bee-keepers make a shallow "dish" of heavy manilla paper, and place it in the bottom of the crate, then if combs are injured the "dish" catches the honey, and prevents the soiling of other crates. All honey crates should have glass on at least one of their sides.

Small lots of honey should be sent by express, and large ones by freight. Express matter is unnecessarily handled rapidly, and when there is a large lot of honey to unload, it is apt to be jerked off in a hurry. When a large lot of honey is sent by freight, the consignee should be notified in advance, so that he may see to the unloading. Small crates should not be stacked up in a tall, upright pile, in a car, but built up in the shape of a low pyramid. If access can be had to one end of the car, place the honey there, as it will be protected on three sides from tumbling down, and upon the other it can be built up like a flight of stairs, which will pretty effectually prevent any crate from receiving a tumble. Always handle honey with care.

A New Process of Extracting Sugar from Sorghum.

In the extraction of sugar from the Sugar Beet, a great improvement was made some years ago in Europe. Instead of pressing the juice from the beets, the roots, finely sliced, were treated with water, which dissolved out the sugar and greatly simplified the process. The introduction of new varieties of Sorghum from which sugar can be procured, has given a new impetus to Sorghum culture, which is to be supplemented by new methods of treating the cane and extracting the sugar it contains. In the usual method, the Sorghum canes are passed through mills, having several erect or horizontal rollers, which express the juice. This milling is found to leave about forty per cent of the sugar which the cane contains, in the begasse, or refuse cane, and is a dead loss. The chemist of the Department of Agriculture at Washington, D. C., reports his experiments with Sorghum, with a view of obtaining a more complete extraction of its sugar by means of diffusion. These experiments and their results are published by the Department in the form of a Bulletin, which those interested in the manufacture of Sorghum will do well to procure and study. As a matter of general interest to farmers, we give a mere outline of the methods. The first point was to reduce the cane to thin slices. For this purpose a machine was constructed, to which the ends of the cane were presented and cut into slices one-eighth to three-sixteenths of an inch in thickness. The sliced cane was then subjected to the action of water, in a "diffusion battery," consisting of eleven cells, each holding ten gallons. This battery is illustrated in the Bulletin, by an indistinct photograph, in which pipes of various kinds are in such numbers

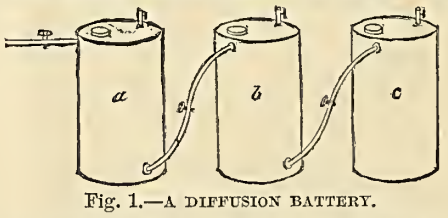


Fig. 1.—A DIFFUSION BATTERY.

as to confuse. Each cell, apparently of cast iron, is thirty inches long by twelve inches in diameter. It has an opening at the top for filling, and another at the bottom for discharging. By a complicated system of pipes and cocks, water, hot or cold, is let into the top or bottom of each cell. We give in figure 1, three of the cells of the diffusion battery, simplified as a diagram, merely to show the working. In the diagram the pipe is so placed as to have the liquid from near the bottom of one cell pass into the top of the next, and so on. The pressure of the city water was employed. The water in the first cell, *a*, being charged with sugar, is forced out from near the bottom of that cell into the second cell, *b*, which it enters near the top, and so on, throughout the whole battery of eleven cells, and that from the last cell is evaporated. The experiments showed, that cane con-



Fig. 2.—THE KEGS ARRANGED.

taining eighty-nine per cent of juice, yielded to the diffusion process about eighty-five per cent. The diffusion process will properly receive the attention of those who now extract sugar from Sorghum by the wasteful process of milling. Those who would experiment with diffusion, without going to the expense of constructing a battery like that of the Department of Agriculture, can construct a simpler apparatus by the use of small kegs. Each keg should have an opening at the top for charging, and one near the bottom for removing the spent Sorghum chips. By arranging the kegs at proper hights, as in figure 2, the liquid from *a* can be made to flow into the next, *b*, without the use of hydraulic pressure. The diffusion treatment of Sorghum promises excellent results, and whoever aids in adapting the method to small operators, will be a benefactor to the farming community.

Melons for Market.

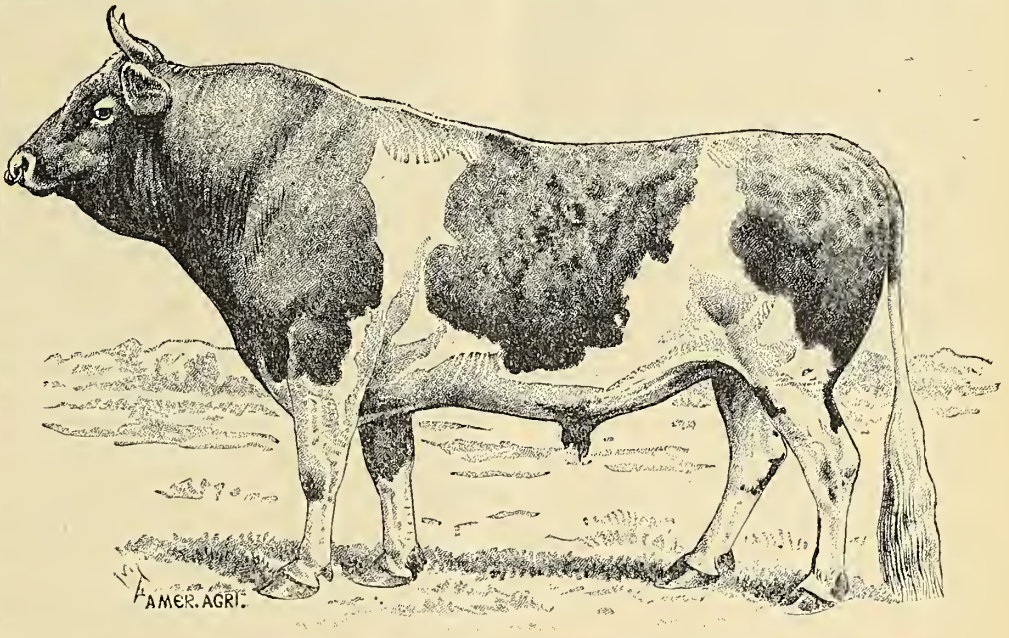
There are, in the writer's neighborhood, a number of small farmers, to whom the melon crop is one of importance. When they are asked what variety of melons they raise, the answer usually is, "my own." These farmers have learned, by experience, that it is of no use to grow more than one kind of melon if they would keep the variety pure, and moreover, that by care in selecting the seed-bearing melons, each secures a form or strain so well suited to his soil, etc., that he is justified in calling it "my own." This appears to be the true course for those who grow melons for market, viz., when they once get a good variety to stick to it, and to improve it by great care in selecting the seed for future planting. Experience shows that melons of the same variety, while they may be alike in external appearance, often differ greatly in quality. Whether this may be due to crossing in the flower of the melon that bore the seed, or to the natural tendency of cultivated plants to vary, it is sufficiently frequent to establish this rule, viz.: Taste all melons before saving their seeds for planting, and reject the seeds of those that do not come up to the standard. It is only by this course that the quality can be preserved. But the growers above referred to, are noted for the large size of their melons, and as sending to the city the largest good melons that are offered. This size, as well as the quality, is the result of several years of careful selection of the largest, as well as the best, as seed-bearers. Not only has size been considered, but relative weight, as indicating thickness of flesh. Shape has also been regarded, and the melons are surprisingly uniform in this respect. What these melon-growers have done, that is, established for the neighborhood a market reputation for their melons, due to size, solidity and high excellence, can be done elsewhere, by following the same methods. Now, with the ripening of the present crop, is the time to begin a rigorous careful selection for next year's seeding.

Guernsey Cattle.

Some of our readers may not know that Channel Island cattle, which used always to be called Alderney cattle, are really of two distinct breeds. Those native to the Island of Jersey, are called Jerseys, and the rest are Guernseys—even those of the Island of Alderney. The latter island never has produced any number of fine cattle, and its name unfortunately was given to the Channel Island cattle by a mere accident. At one time England was making a great fortified harbor. Hundreds of vessels were going and coming to and from Alderney, and because they could get no return loads from that rocky little island, they went to the larger ones of the group, and whatever they brought, potatoes, butter, cabbages, cauliflowers (for which the islands are famous), or cattle, all were supposed to come from Alderney. This led to the application of the name, Alderney, to all the Channel Island cattle. The name remains, and is a good one to apply to any Jersey or Guernsey cattle which for lack of pedigree cannot be registered in the Jersey herd-book or are of mixed blood.

These cattle, the Guernseys, not less than the Jerseys, have proved themselves hardy, prolific, adapted to all countries, and admirable as family cows, and producers of the choicest butter. The Guernsey cow has not as yet figured so notably in the fashionable circles as has her cousin of the adjacent island. She is not credited with the same sylph-like delicacy of figure, or gazelle-like style. Her merits are of a more homely and useful order. She is heavier, and while a great milk and butter producer, has the quality of converting feed either into milk and butter, or into admirable beef, as the occasion may require. Her butter is much higher colored than the average of Jersey cows. So intense, indeed, is the color, that the presence of one Guernsey in a herd of six or eight common cows, or of eight or ten Jerseys, will give an agreeable tint to the butter all winter, provided there is proper variety in the feed supplied to her. The quantity of butter she is able to produce, is as yet undetermined. Some cows within our knowledge, have approached three pounds a day. Many are worthy of being in the "fourteen-pound list," if any such list has been, or is to be made.

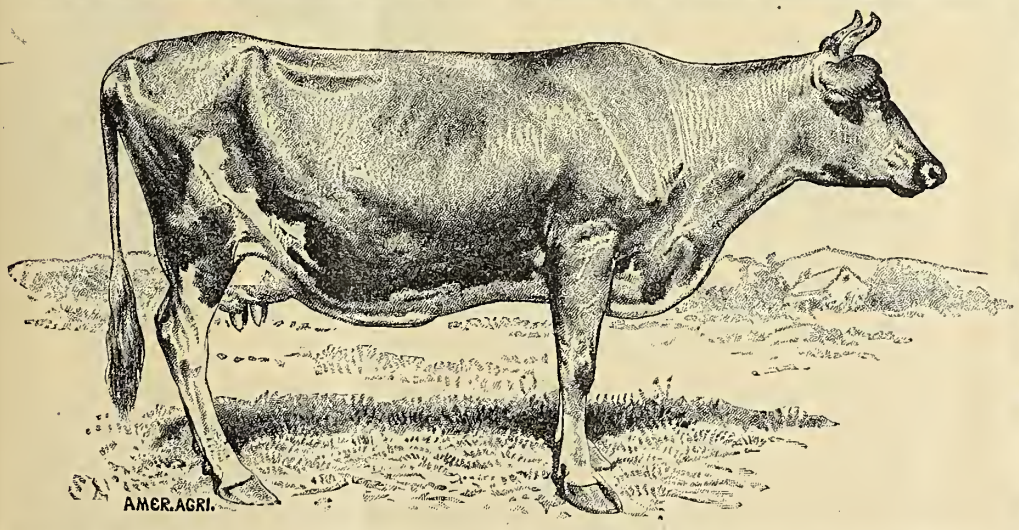
Jersey breeders from perhaps the earliest periods have enriched their strains of breeding by the occasional introduction of Guernsey blood. In fact, it is a conceded point that the variable richness of color possessed by the Jerseys is largely due to a remote Guernsey cross. The variability in coloring, both in the skin and in the milk of Jerseys, plainly indicates a characteristic not thoroughly fixed in the breed. This color or "richness," as it is termed on the Islands, when highly developed in the more fashionable race, is so often associated with a rich, yellow-fawn, or yellow-fawn and white, or a positively light-red or red and white coat in Jerseys, that it offers another evidence that both are effects of the Guernsey cross. As a notable example in point, we refer to the well-known cow Jersey Belle of Scituate, now dead. She was completely of the Guernsey build and color, with perhaps slight shadings, which indicated Jersey blood. Her head and legs were delicate for a Guernsey, but not unlike many, and her butter, at least her grass-made butter, was yellow enough for a Guernsey. The cross of Guernsey and Jersey cattle will at any time produce just such cows in style and general form, while in the matter of yield of both milk and butter, we have no doubt that among a lot of such cross-breeds, some would approximate even her extraordinary record.



THE GUERNSEY BULL "LANCER."—*Drawn (by Forbes) and Engraved for the American Agriculturist.*

The proper development of this excellent, beautiful, and useful breed, and the responsibility of making it popular, rests with the breeders of the American Guernsey Cattle Club. They cannot expect the breed to "boom" itself. No doubt there are families of extraordinary butter power—those ought to be found out and brought out. A few years ago it was enough for the lover of Jerseys to know that an animal he thought of buying was recorded in the Register of the American Jersey Cattle Club. Now, though that registration is essential, it counts for very little in determining the value of a cow supposed to be worth more than a hundred dollars. The butter record of her ancestry, and of cows known to be of her immediate kindred, determines her market value to be two, four, or six hundred, or even many thousands of dollars. The same must be, and we predict it soon will be, the case with the Guernseys. The great yielders, like "Elegante," for instance, draw their blood from sources in which butter has been for generations a characteristic, or else they are extraordinary sports of nature. If the qualities are inherited, as without doubt they are, they will be transmitted to the progeny of such cows.

The breeder of Guernseys must therefore bear in mind that pedigree is the foundation of success. This pedigree must be written in butter. A few weeks ago, a famous Jersey bull was sold at auction in this city, in the very high prime of his life a sure getter, of magnificent form and size, of the most fashionable color, the most illustrious animal of his breed in the world as a prize winner, and of an illustrious ancestry as prize winners, not however particularly famous as butter producers. Three years ago he sold for thirty-two hundred dollars. The breeders of the Island of Jersey felt his loss to the island so keenly that they sent over to buy him, but were out bid by an enterprising New York breeder. This year he sold for the low price of one hundred and forty dollars, simply because so few of his daughters, which have come to milk, prove of particular excellence as butter yielders, although they are one and all hard to beat in the prize ring. Butter is therefore the first consideration, both in the pedigree and in the individual if a female, and in his dam if a male, but above all in his daughters after he has come to maturity. A bull at three years old should have daughters in milk, the producing power of which can be tested. A two-year-old heifer, giving twenty to twenty-eight pounds of milk a day, yielding ten to twelve pounds of butter a week, is good enough. Such are exceptional, but they sometimes occur.



GUERNSEY COW "VESTAL OF LARCHMOUNT."—*Drawn (by Forbes) and Engraved for the American Agriculturist.*

Next to butter comes form. In milch cows of great capacity, we find a characteristic form prevails. This is not an indication of much butter, at least not an infallible indication, for many great milkers are only moderate, and occasionally small butter producers. Still it is a good thing in a cow to be well formed for a milk yielder. This form has been cultivated, that is bred for, for years in Guernsey, and the best Guernsey cows now possess it. It is marked by a long body, much larger in the hind than in the fore-quarters, open ribs, a long, broad loin, wide, high hips, flat thighs, a deep flank, and a great expansible udder, with strong, tortuous milk-veins upon the belly and beneath the vulva. The favorite color for Guernseys is yellow-fawn with buff nose, yellow horns and hoofs. White spots are not objected to, and a white triangle in the forehead, and white switch are regarded as characteristic. Well-grown Guernseys are one to two hundred pounds heavier than average Jerseys, and the larger ones often approach the size of Shorthorns. Guernsey steers, or oxen, have occasionally been fattened to reach the weight of sixteen hundred to two thousand, or even two thousand two hundred pounds. Guernsey and half-

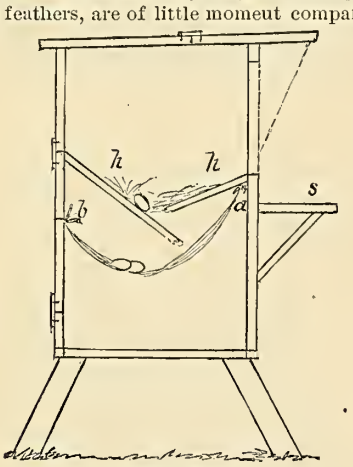
Guernsey calves are usually large, so that the use of Guernsey bulls is favored by farmers, who make veal of many of their calves. In these particulars the Guernsey is a strong contrast to the Jersey.

We present our readers on the preceding page, engravings of two excellent Guernsey animals. They are the property of Mr. H. de B. Schenck, of Larchmount, Lenox, Mass. The cow, "Vestal of Larchmount," (1507), (Guernsey Herd-book, number 686), is lemon-fawn and white, was dropped Nov. 1877, selected on the Island, and imported by Mr. Schenck. She is now giving eighteen quarts of milk a day. "Vestal" comes of a line of famous prize winners, and herself won third prize in a class numbering one hundred and four entries, at the Shows of the Royal Guernsey Agricultural Society, May, 1883. She was imported in September, calved April 16th, and two weeks after that date, one day's milk made two pounds six ounces of butter.

The bull, "Lancer," (131), was imported in dam, and dropped in August, 1878. He is fawn and white, of superior form and size. He won first prize at the Central Berkshire Stock Show at Lee, Mass., in 1882, and the next year first at the Berkshire, Mass., Agricultural Society Show at Great Barrington.

Egg-Eating Hens.

The very worst habit hens can get into is that of eating their eggs. Dropping eggs from the roosts, or about the houses and yards, and eating each other's feathers, are of little moment compared to



AN EGG TRAP.

it. It is a habit they learn from one another. If only one or two, or a few hens in a flock eat eggs, make short work with them. They will probably be found healthy and fat, and will at least make good broth, even if too old to roast. But if, as with a subscriber living at Grandin, Dakota Ter., who has one hundred and twenty laying hens, and gets only fifteen eggs a day, the case is different. It will probably pay to outwit the hens, and thus cure them. There have been many nests in use, for allowing the egg to roll out of the hen's sight as soon as laid. The engraving represents a section of a range of eight to twelve laying boxes, or nests, with each nest about a foot square, and separated more or less completely from the adjoining ones by a board partition. The bottom of all the nests is made by two boards, one of which is five inches wide, the other about eight. They are fastened so as to leave an inch-and-a-half space between them. Before they are nailed in place, some fine soft hay, *h*, is fastened upon the upper sides by tacking on strips of tape, leather, or list. Care should be taken to have this hay or grass lie smoothly, and that upon the narrow board must have only a few of its thin, soft ends hanging over the edge. The centre of each nest must be made on the broader board, and a painted wooden egg fastened on by a screw going through the board. When the hen enters such a nest, she will mistrust nothing; she will not eat the wooden egg, and when she lays her own it will fall through the bottom. The egg is received upon a mass of hay, or, much better, a piece of sacking, *a*, *b*, tacked to the underside of the narrow board, and at a lower point to the top of a board behind the box hinged at the bottom. The sacking must be slack enough to allow the hinged board to open far enough to take the eggs out, but not so that they will roll out. There is an alighting shelf, *s*, and a broad cover over all, which may be hinged in the centre if desired, for the greater convenience of examining the nest. Such a range of nests, covered as described, may have a roosting pole a foot above it, and the droppings being caught on the top, can be readily carried off from week to week.

How and When to Shoe Horses.

PROF. D. D. SLADE, HARVARD COLLEGE.

Horse-shoeing has given rise to much controversy, yet it is a matter which in itself, so far at least as regards the principal object in view, is extremely simple and easily understood. The object of the shoe is the protection of the ground surface of the outer wall of the hoof against excessive wear. In the wild horse, the balance between the growth and the wear of the horn of the hoof, is equally maintained, but when civilization subjects the animal to hard and rapid labor upon paved and macadamized roads, then this balance is destroyed —the wear exceeds the growth. Hence the aim of the farrier is to ward against this condition of things by attaching a rim of iron or steel to the circumference of the foot. The moment this is done, however, the balance is again destroyed the growth will exceed the wear, necessitating in time the removal of this metallic rim, and the reduction of the horn by artificial means. Although the growth of the horn downward is equal over the entire surface of the wall, it will usually be found that in the healthy foot, more must be removed from the toe than from the heels or quarters. This is because the shoe is firmly fastened at the toe, whereas, in the other regions, especially at the heels, there is a certain amount of motion allowed by the absence of nails, and consequently more or less wear takes place. This may be readily seen on examination of a shoe that has been worn for three or more weeks, the burnished line on the foot surface of the shoe showing distinctly the outline of contact. It may be asked whether it is not practicable in many cases to dispense with shoeing. We answer most unhesitatingly yes, with great benefit to the animal as well as to the owner. There are many country districts where the roads are of turf, or are sandy, and where shoes are unnecessary. If the colt is never subjected to this process, the foot acquires that natural firmness and hardness which will serve the animal under ordinary circumstances. In winter, when the roads are very slippery, and the horse is called upon for heavy draft, in many cases we must provide means by which he can gain a firmer foothold; and this, in the present state of our knowledge, can only be done by shoes furnished with calks. We do but follow a blind and foolish custom where we apply shoes without the necessity. When shoes have been constantly worn, and it is desirable to dispense with them, great care must be exercised in gradually accustoming the foot to this new condition, and no long or severe labor should be at once demanded of the animal.

Calks are detrimental under any circumstances, and should always be avoided if possible. There can be no reason or excuse for their use on road horses of light draft in summer, even on pavements. When actually required, it is very essential that they should have an equal bearing on all sides, at the toe as well as at the heels. Any unequal distribution of the weight of the animal is sure to bring about strains of the ligaments, sinews, and muscles. The fashionable heel of the modern belle is not more sure to lay the foundation for future suffering. No shoe should be allowed to remain upon the foot more than four or five weeks. Many farmers patronize the farrier who nails on the shoes so that they will remain more than double this time, with the idea that such a proceeding is economical, whereas, it is the furthest possible remove from economy. As the growth of the horn is constantly downward and outward, the shoe, which when applied weeks before, was fitted to the foot, has now become altogether too small, and consequently there is constant pressure upon the sensitive portions at the quarters, causing corns and other affections. On the removal of the shoe, if again to be applied, the ground surface of the wall of the hoof must be reduced by the rasp to a perfect level, which can be attained by the eye accustomed to good work. The level of the untouched sole forms a ready and practical guide for the amount of reduction. Neither the sole nor the frog should undergo the least mutilation, since nature removes by constant exfoliation all superfluous horn, neither should the natural barrier at the heels, provided for the express purpose of keeping the foot expanded, ever be cut into, as is the almost universal custom, under the insane idea that it "opens out" the foot. No greater folly or barbarity can be committed, and no surer way could be devised for producing contraction with its attendant evils. The walls of the hoof should never be rasped. It is by this process that the external fibres of the horn are destroyed, the beautiful polish removed, and the internal surface exposed, whereby the entire structure is rendered more brittle and unfitted to perform its functions. Let the intelligent farmer who has hitherto given little or no thought to this important subject, follow the above instructions, and satisfy himself of their correctness, and tell them to his neighbors.

An Enemy to Maple Trees.

Among the many kinds of Bark-lice (*Coccidæ*), is one which attacks the Maples. This was first described in 1868 as *Lecanium acericola*, along with another new species peculiar to the Osage Orange (*L. Macluræ*). Both these insects are shown in the engraving, that at the left being the one which attacks the Maple. The insects, on being hatched, attach themselves to the tender bark of the young shoots, and also to the leaves of the Maple. A scale is formed upon the back of the louse, seen in the dark portions in the engraving. From beneath the scale protrudes a snow-white mass of fine cottony threads, which cover and protect the eggs, and perhaps the newly hatched insects. The eggs are hatched in July. The description referred to is very meagre, and nothing is said of the means


MAPLE AND OSAGE ORANGE SCALE INSECTS.

for destroying the insect. Specimens were recently sent us by Mr. Chas. E. Keller, Shelby Co., Ill.

The insect was first discovered in Indiana and afterwards in Iowa. In the absence of any report as to the best means of destroying the insect, we should be disposed to try the Emulsion of Kerosene, described in March last, page 114. This should be freely thrown into the tree, using a garden syringe. This or any other application would be most effective, if it could be applied when the insects are first hatched, and before they have formed a scale, a point which can only be ascertained by close observation. Let us hear from any who have successfully treated this pest. Mr. K. states that the insect "is devastating the shade trees, and is beginning on the fruit trees."

A Good Strawberry Coming.—The Banquet.

The *American Agriculturist* has long urged that the growers of new strawberries should work in the direction of high quality, rather than in that of large size. No one wishes to be obliged to cut a strawberry in order to eat it conveniently, and we already have a sufficient number of varieties, the only claim for which is stated in inches of circumference. Mr. J. R. Hawkins, a successful cultivator of small fruits, at Mountainville, Orange Co., N. Y., submits to our inspection abundant specimens of a new strawberry which he calls the "Banquet." The origin of this new berry is stated by Mr. Hawkins in substance as follows. In 1880 he had a bed of that high-flavored, but rather dry variety, "Miner's Prolific." Some of the runners of this had made their way into a fence row, where our native wild strawberry (*Fragaria Virginiana*), was growing. Two or three of the largest berries of "Miner's Prolific," from the plants closely associated with the wild ones, were selected. The seed from these were separated, and sown in a box of earth, placed where it would receive the sun during the early part of the day. Some thirty or forty seedling plants had made their appearance in September, which were transplanted to the open ground in October. Unfortunately the hens undertook the cultivation of the patch, and with the usual result. The uprooted plants were replanted, and all were left without protection the following winter. In the spring of 1881, one of the seedling plants threw up a flower-stalk, and in June ripened about half a dozen berries of moderate size, and of such excellent quality, that Mr. Hawkins was careful that all the runners it made should take root. These gave him about six plants, which were set out in August. In 1882, about a quart of berries were borne by these plants, which were submitted to several well-known pomologists, who at once pronounced the fruit to be "one of great promise." The runners from the plants were pot-layered, and the plants, about fifty, were set out in September. These, in 1883, bore about fifteen quarts of berries. The same year Mr. Hawkins exhibited the berries in Boston, where the Mass. Hort. Soc. awarded it the premium for the best new seedling. We have been thus particular in giving the details of the production of the "Banquet," in order that they may serve as a guide to others who wish to undertake the production of seedling strawberries. Mr. Hawkins states that the plants have each year increased in productiveness, and in the size of the fruit. This year berries were produced measuring an inch and a half in diameter, which is certainly large enough. The berries sent us were of uniform conical shape; while a few are shouldered, none are of the cocks-comb form. The fruit is perfectly ripened at the end opposite to the stem. The color is of a rich crimson, without that tendency to turn black, so unfortunate in some varieties. We are informed that Mr. Charles Downing, noted for his caution in expressing an opinion, has stated that he regards the "Banquet" superior in flavor to the berry which bears his own honored name—high praise indeed. After carefully testing the "Banquet," we accord it a place among the highest flavored strawberries. The exquisite flavor of the wild fruit is so marked, that we can readily believe that this is due to a crossing with the wild plant. Mr. Hawkins' course in regard to sending out his new seedling, is to be highly commended. Many berries with not a tithe of the real value of this, have been heralded far and wide as the coming berry. Mr. H. declines to place the "Banquet" on the market, before it has been fully tested by further culture. He expresses his regrets that it is not possible to have a committee of the Am. Pomological Society report upon the merits of new fruits, and adds: "I have a strong aversion to letting the 'Banquet' go out before some such thing is done, deeming that some action of this kind is needed for the protection of the public."



THE "BANQUET."

A New and Serious Strawberry Pest.

Mr. Samuel G. Wynant, Rossville, Staten Island, N. Y., a successful strawberry grower for twenty years, informs us that this year his crop has proved almost an entire failure, owing to the ravages of vast numbers of a small beetle. Specimens being submitted to us for examination, we have discovered them to be the same insect mentioned by Prof. Cook, State Entomologist of Michigan, as new to that State, viz., the Strawberry Weevil, (*Anthonomus musculus*). Now for the first time this beetle appears as a serious enemy to the strawberry, though it has been known to scientists for some years, having been described by Say. The readers of the *American Agriculturist* will be kept fully posted as to its progress. There are several species of this genus *Anthonomus*, closely resembling each other; in fact, the samples brought us by Mr. Wynant contained at least two species of these nearly related little weevils. The beetle is about an eighth of an inch long, and varies in color from a dull-red, to almost black. The wing-cases have impressed lines, bearing a few scattered dots. In the accompanying engraving the weevil is shown much enlarged, with hair lines to the right indicating the natural length. Very little is known of the habits of this new enemy to the strawberry, and its ravages this season suggest it as a subject worthy of the immediate attention of entomologists. Until the natural history of the insects is known, we can only mention remedies to be applied to the devouring beetles. The weevils feed upon the floral parts when the strawberry plants are in bloom, and also pierce the fruit-bearing stems, causing them to break off with their partly formed berries. In using any insecticide, it must be remembered that it is unsafe to use substances poisonous to persons. Paris Green and London Purple may be safely used on young apples to kill the codling moth worm, but to dust or spray a fruiting strawberry bed with a compound of arsenic, would be ruining too many risks. An emulsion of kerosene or petroleum, a formula for which was recently given in the *American Agriculturist*, may prove a satisfactory remedy. Pyrethrum powder is an excellent insecticide, and experiments should be made to prove its value in this case. After the life history of the weevil is fully known, it may be found easy to destroy this enemy in one or more of its earlier stages of development. It is hoped that the destruction which has come to the Staten Island berry fields, may not be repeated there, or visit other localities in coming years. Some of our insect enemies come and go, while others remain and continue to destroy as long as their favorite food-plants are grown, unless fought with a tireless vigilance. Mr. Wynant observed a few of the weevils on his strawberry plants last year. This fact leads us to suggest that it may be best to burn over with straw, and plow under the ruined fields, and if possible begin strawberry beds elsewhere, or grow other crops and attempt to starve out the troublesome weevils.

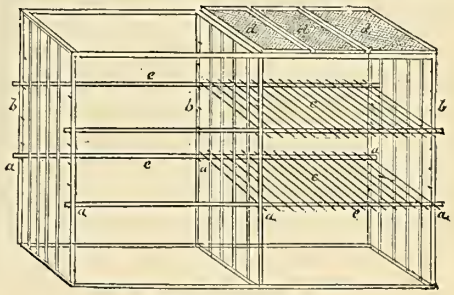


STRAWBERRY WEEVIL.

This beetle must not be confounded with another, which, though destructive, works in a different manner. We refer to the Strawberry Crown-borer *Tyloderma fragariæ*. This beetle is a trifle larger than the one above figured, and is brown, with darker brown spots. It lays its eggs upon the crown of the plant, and the larva, when hatched, eats its way into the crown, upon which it feeds and kills the plant. Digging up the infested plants and burning them is the only sure remedy. Subscribers living elsewhere will please report ravages of the new strawberry pest, if any occur.

A Silk-Worm Cocoonery.

Any cheaply constructed outbuilding will answer for rearing silk-worms, if it be not near to any bad odors, and can be easily ventilated and heated. If the building is old, it should be thoroughly renovated, white-washed, and perfectly dried before receiving the worms. For household culture, a room eighteen by twenty feet, with two movable shelves extending around the room, two feet apart,



A SILK-WORM RACK.

will safely accommodate sixty thousand worms. A building eighteen by thirty-six feet, ten feet high, with four windows and two doors, will house two hundred thousand to two hundred and fifty thousand worms without crowding. Each cocoon rack is fourteen feet long, by five feet wide. There are six uprights, *a*, *a*, seven feet high, two inches wide, and one inch thick, mortised into the top and bottom of the frame. Stout nails, *b*, *b*, are driven into each upright, five inches apart, for holding the lath platforms, *c*, *c*, by which the worms feed. These racks can be taken apart and stored away after the feeding season is over, while the cocoonery can be used the remainder of the year for many other purposes. The trays, *d*, *d*, are placed on the platforms and used for feeding the young worms until after the second moult, when laths are laid crosswise over the rails, *e*, *e*, and branches laid on the laths. The lowest rods rest on the nails driven into the uprights, eighteen inches from the floor. As the branches accumulate on this platform, long rods with laths are laid on every fifth nail from the bottom. The worms will crawl upon the fresh leaves placed on the upper platform, and the lower rods may be drawn out and the litter removed. The worms may be carried to the top of the frame in this manner, and by that time they are ready to spin. When the cocoons are to be gathered, the spinning frames can be taken down. This is the most economical, convenient, and healthful arrangement for raising silk-worms that has been constructed.

The cocoonery should be well ventilated during the greater part of the season, and more especially during warm, sultry weather, the windows and doors need to be kept open night and day.

The sun should not shine directly on the worms, nor should they be exposed to drafts or sudden changes of weather. On damp, cold days, a little fire in the cocoonery will be needed. The natural laws governing the existence of the worm should be imitated as closely as possible.

The trays, *d*, *d*, used for feeding the young worms are made of laths nailed together. Full length laths are used with half lengths for the ends and center pieces. Small nails or tacks are driven in the edge half an inch apart, and twine is wound around each nail, passing across the frame both ways. Heavy brown paper with holes of different sizes, will answer for the bottom of the trays, in place of the twine. Twine trays may be used for feeding the worms, and for spinning, which adds to the convenience of gathering the cocoons. By loosening the twine at one end, and taking it back and forth from the nails, the cocoons can be stripped off in one half the time that it takes to gather them from among the branches, and there is less danger of bruising them.

Animal Ailments.

PROFESSOR D. D. SLADE, HARVARD UNIVERSITY.

HOG CHOLERA. SWINE PLAGUE.—A. A. Eaton, Lackawanna Co., Pa.—Your description of the symptoms exhibited by the sick swine faithfully portrays the course of swine plague. "The symptoms are as follows: first, a dull, sleepy feeling accompanied by a cough, which increases from day to day, and an entire loss of appetite after the first day. The ailment affects the small of the back (the spinal system of nerves), so much so that the hog, in most cases, loses the use of its hinder parts, but in a few instances it can get up and down until death. Later the animal breaks out on the belly and around the throat, with red blotches which increase in size, until they cover the entire belly from under the chops to the tail. They are purplish-red, and look almost like mortification. The hog dies in from three to eight days. So far none have recovered. With two, great emaciation accompanied the disease, but in the other cases they remained plump."—This is a highly contagious disease. By no means expose any newly purchased animals to the poison. Kill the sick and deeply bury all carcasses. Disinfect by efficient means everything that has come in contact with them. Use Carbolic Acid, Chlorine, Chloride of Lime, or Copperas. It would be far better not to occupy the same piggery under any circumstances if it can be avoided, certainly not until it has undergone a thorough and long continued purification. Place any newly purchased animals under strict quarantine long enough to prove their healthy condition. Avoid communication between these and the former herd by the same attendants.

GNAWING THE WOODWORK.—Jno. W. Hall, Hancock Co., Me.—Has a mare which "eats up her crib and everything that she can reach, is fat, feeds and works well."—It is often difficult to ascertain the cause of this propensity. It may depend upon irritation of the teeth and gums, or upon habit, which is the result of confined idleness, or again, the animal may find something in the wood congenial to its taste. We are not treating here of crib-biting as a vice. Whatever may be the cause, the remedy is to provide no wood-work for the animal to gnaw. Place the mare in a box stall with perfectly smooth sides and no projections. Feed grain from an iron manger, and hay from the ground. Give salt, and a chance to eat earth, plenty of exercise, and a variety of food at all times.

FEEDING OF HORSES.—E. Higgins, Norfolk Co., Mass.—Corn and oats should not be ground together in equal quantities, and given as food to the working horses, for the reason that the corn contains twice as much oil as the oats, has marked heating qualities, and being such concentrated food, is liable to produce colic and indigestion. To be sure, there are many horses on slow work that may become accustomed to a mixture of equal parts of oats and corn, and may escape any evil consequences, but still there is always danger. It is better to err on the safe side, and to feed a mixture, in which the oats exceed the corn by just double the amount.

SPLINT.—Mr. B. Moore, Greene Co., N. Y.—Splint is a bony enlargement or tumor, which in its formation causes pain and consequent lameness by the distension of the covering of the bone. This covering is extremely sensitive when at all inflamed. Sometimes the growth is very gradual, and the neighboring tissues accommodate themselves to the abnormal condition without causing pain and lameness. The size of the splint is no criterion of its importance, a small one often giving more trouble than a large one. The treatment in its early stages consists of subduing the inflammation by rest and cooling applications. After all heat and tenderness have gone, blistering is of service, which is to be repeated if the enlargement continues. If pain and tenderness return after an apparent cure, give the animal a long rest. It is not advisable to perform any surgical operation for the mere purpose of removing the tumor, as such an operation may induce an undue amount of inflammation in the parts. The tendency of the splint is to become absorbed. Hence it is not often found upon aged horses. The ointment of the Red Iodide of Mercury often proves an excellent absorbent of the bony tumor, a small portion to be rubbed in daily.

SHOULDER LAMENESS.—Mr. Reuben Davis, Columbia Co., N. Y.—From the symptoms given in your letter, I should say that the horse is suffering from shoulder lameness, the result of a sprain, or possibly of rheumatism, and that morbid changes were going on in the joints, in the course of which bony exudations will be thrown out. The presence of these changes undoubtedly account "for the snapping or cracking noise heard somewhere near the shoulder joint." For treatment, put on a high-heeled shoe, and turn out to pasture. Complete rest, or only very slow, light work, must be insisted on. Subdue any inflammation by warm water fomentations to the joint, to be frequently repeated.



OUR BASKET.

Grandmother's Gingerbread.—A correspondent asks us for a recipe for gingerbread, "such as our grandmothers used to make." Our grandmother's granddaughter makes as good gingerbread as we ever saw, and this is the way she does it: Molasses, two cups; milk, one cup; flour, four cups; butter, one-half cup; soda, one teaspoonful; spice (cinnamon, cloves, or ginger), to taste. We have a notion that the best gingerbread is made without ginger.

Plant for a Name.—P. H. Adams, Williamson County, Tex. The plant sent, which you say the Cherokees call "Tonkawa," is *Gonolobus biflorus*. The genus *Gonolobus* belongs to the Milkweed (*Asclepias*) Family, and its species, usually climbers, are more abundant in the Southern than in the Northern States. But little is known about their properties, except that the roots of one or two are said to purge violently, and the Indians used the juice of some of them to poison arrows.

Our List of Fairs.—Already we receive applications for our list of the fairs to take place the coming autumn. We again urgently request, as usual, all Secretaries of Societies and Fair Associations, who have not already done so, to send us their announcements at once. Our publication of the list, gives each fair, however local, a wide advertising, which is worth taking a little trouble to secure. Let us have the announcements early!

A Curious Insect.—W. L. Remington, New Haven Co., Conn., writes: "I send by mail a curious insect, which I found under a stone in a moist place, and would like to know the name of it." The insect is the Northern Mole Cricket, *Gryllotalpa borealis*. Its name indicates its burrowing habits. This not very common insect was described and figured in the "Doctor's Talks" for November, 1881, page 493. There is another species in the Southern States, and one in the West Indies, which latter is said to be very destructive to the roots of the sugar-cane.

Rose-Bugs and Roses.—M. Stanford Jackson, Allegheny County, Pa., complains of the havoc the Rose-bug makes with his roses, and asks what he shall do to prevent their appearance on the bushes. The Rose-bug appears to defy the ordinary insecticides, and to require catching and killing. In early morning they are torpid, do not readily take to flight, and may be shaken from the bushes at that time. They may be caught upon cloths spread under the bushes, or in broad, shallow tin-pans, which contain a little kerosene. Those caught on cloths may be killed by kerosene or by burning.

Hurrying the Chicks.—H. J. Janzer having heard that there is an incubator that will hatch eggs in considerably less than twenty-one days, asks if it is true, and upon what principle such an incubator is constructed? We doubt if there is any method by which the time of incubation can be shortened an hour. In our experience with an incubator, we have found that those eggs which did not hatch within half a day after the twenty-first, did not hatch at all. The improper management of the heat may prolong the time for a few hours, but that any invention can be made to appreciably shorten it is, we think, very improbable.

Water Cresses.—Several who have suitable streams for growing Water Cresses, ask how to stock them with the plants. If Water Cress grows any where in the vicinity, the easiest way is to get plants or cuttings from an established bed. A fragment, or branch of a plant will grow readily. If plants are not available, they must be raised from seeds, which are kept by the principal seedsmen. The seeds may be sown in pans or shallow boxes, keeping the soil quite moist. When the seedlings are up, water freely, keeping the soil in the condition of mud. If exposed to full light, with plenty of water, the plants will grow very rapidly, and soon be ready to set out in the water beds.

Fertilizer for Strawberries.—C. O. Foster, McKean Co., Pa. Superphosphate of Lime, made by treating bones with sulphuric acid, would no doubt be useful for strawberries, though we should prefer thoroughly decomposed stable manure, or if a special stimulating fertilizer is required, guano, or ashes. If it is proposed to use superphosphate, buy it, but do not undertake to make it. To one without experience in such manipulation, the operation of treating bones with sulphuric acid is a dangerous one, and has resulted in serious accidents. Farmers can make many things cheaper than they can buy them, but superphosphate is not one of these.

Above-ground Cellars.—The subject of building cellars above ground and apart from the dwelling, is evidently engaging the attention of many persons. Mr. H. W. Pond, New York City, writes us a number of suggestions concerning the building of such a cellar, one of which seems of special importance. He says: "I should make the first, or lower floor, of asphalt, and the foundation walls should have a stratum of asphalt laid in them at the level of the floor, to prevent the ascent of moisture." Also, "the asphalt or cement floor," he suggests, "should be sloping, and scuppers made, so that, for sanitary reasons, it could be flushed with water." Mr. P. also suggests, that such a cellar should have an ice-chamber at the top.

Tomatoes and Cancer.—"Old Subscriber" writes: "I have two acquaintances who are afflicted with cancer. They have both been advised by their physicians to discontinue the use of tomatoes, either cooked or raw. Will you kindly give your opinion on the tomato and cancer question?" The statement that the use of tomatoes will cause cancer, has been the rounds of the press like many other loose assertions. We have not seen it stated by any responsible authority that the tomato has any relation to cancer. Secondly, we should wish to know, who decided that the friends in question are afflicted with cancer. Not one case in ten of so-called cancer is really that terrible affliction. For ourselves, we shall continue to eat tomatoes.

What Effect has Salt Upon Animals?—This question comes to us frequently. There is a small body of "reformers" who hold that the use of salt is the cause of many human ailments, as well as the diseases of our domestic animals. The necessity for salt in the human system was recognized in the ancient laws of Holland, which condemned criminals to be deprived of salt in their food, and they died in the greatest torture. Wild animals, especially deer, show that they regard salt as necessary, by travelling great distances in order to reach the "salt licks." Domestic animals show by the avidity with which they dispose of the salt at the periodical salting, that it meets a want of their systems. We should regard these manifestations as proof that animals needed salt, and that it was in some way beneficial. Physiologists tell us that the blood contains a large per cent of salt, and that this is necessary in order to keep the blood in its proper condition.

Meal Worms.—S. B. Doane, San Francisco Co., Cal., asks us: "How can I keep a stock of 'Meal-worms', in what must I keep them, and on what should I feed them, that they may multiply fast?"—There are two caterpillars called "Meal-worms," the parent insect of one being a beetle, and of the other a small moth. The worms are often found in old flour barrels, in Indian and rye meal, old ship bread, etc. They are used as bait in fishing, and especially as food for singing birds. If the worms are not full grown, we should keep them on Indian meal. There is no treatment by which our correspondent can multiply them, as in their caterpillar state they do not breed. They must pass into the state of pupa or chrysalis, from which they will come out as beetles, or moths, as the case may be. These are the perfect states only in which do they breed. The perfect insects lay eggs from which the worms hatch, and live in flour, meal, etc., until they reach their full size, when the same round is again gone through.

Rats and Flies.—We have received from ladies, suggestions for keeping both these pests at a distance. We give these for the purpose of asking for wider experience. If the remedies are generally efficacious they should be more widely known. As to rats, we translate from Mary Hadlein's German letter, who says: "The best thing to drive away rats is the Peppermint plant; they can not bear the smell of it and disappear. We place it in the oats, rye, etc., when they are brought in, and also under the pig pen. Though we no longer have any rats, we keep on using the plant, lest a strange one might make us a visit." In absence of the fresh herb, a few drops of the Oil of Peppermint should be equally efficacious. As to flies, Mrs. L. L., who has had several years' experience in California, writes us: "In southern California every old Spanish residence is surrounded with the Castor Oil plants, and when the American residents are tortured with the "July fly," that rivals all flies in numbers and pertinacity, these Spanish homes have not a fly or a mosquito in them."

Stumps. — Saltpetre and Kerosene.—An item went the rounds of the papers a few years ago, advising to bore a hole in the stump, drop in some saltpetre, and fill the hole with water. The next spring the hole was to be filled with kerosene, which, on being lighted, would consume the stump to the very ends of its roots. Mr. S. C. Sweetser, Aroostock Co., Me., adds his testimony to that of others, to show the entire inutility of this process. He tried it two years in succession, and the stump, which stands high upon the river bank, remains, to hundreds yearly, a prominent land-mark. Dynamite, or gun powder, would no doubt dispose of the stump. But why not, as it interests travellers by the river, let it remain?....Mr. J. A. Conkling, Baltimore Co., Ind., writes that he tried the saltpetre method on thirty or forty stumps, "and in every case failure was the result." He tried dynamite cartridges, placed in a hole made under the stump with a crow-bar. After the match was lighted, "there was a large hole in the ground, and the stump in the form of kindling wood."....Thos. P. Jones, Nova Scotia, adds, that he tried the saltpetre and kerosene method, and "the stumps are as sound as ever."

A Home-made Fruit Picker.—J. Ely, Kane Co., Ill., asks, if we have given an engraving of a good, home-made Fruit Picker. We have, first and last, given a great number of fruit pickers, but perhaps none better than one proposed by J. H. Ten Eyck, Cayuga Co., N. Y., who kindly gives every one the privilege of making and using it. A make-shift picker may be made from an old tomato or similar can. Cut some notches in the upper edge of the can, fasten it to the end of a stick of convenient length, and put a lock of hay in the bottom of the can. Mr. Ten Eyck's can is a bottomless dish, three inches high, five inches across at the top, and three and-a-half inches at the bottom. This dish has a socket, by means of which to attach it to the pole. Above the socket project two stout wires close together below, and spreading above, to detach the fruit. To the bottom of the dish is a long, bottomless bag of cotton cloth, of a proper width, to be tied to the bottom of the picker. This bag, or hose, should be about two feet longer than the pole. By means of this, fruit upon the outside of the tree, always the largest, can be detached, and sliding down the cloth channel, may be caught and conveyed to the basket without bruising.

"How is Corn Hybridized?"—J. S. Harmon, Madison County, Iowa. In answering the above questions, as we, of course, have no means of knowing how much the questioner understands of the fertilization of plants, we are obliged to assume that he knows nothing. The majority of people are aware that there are two parts of the flower concerned in fertilization, the pistil, the part to be fertilized, and the stamen to furnish the fertilizing principle, the pollen. In our fruit trees, in the bean, pea, the tomato, and many others, these parts, the stamens and pistils, are in the same flower. In squashes, cucumbers, and all of that family, the stamens are in one set of flowers and the pistils in others, but on the same plant. If the bees and other insects did not carry the pollen from the staminate, or male flowers, to the pistillate or female flowers of these plants, these latter would not be fertilized. In corn, the two kinds of flowers are upon the same plant. The flowers of the tassel are staminate only, and produce pollen. The pistillate flowers, very simple in their structure, are closely set upon a short stem, the cob, and are surrounded and protected by leafy bracts, the husks. Each one of these flowers has a long, slender, thread-like portion to its pistil (the style), which extends from even the lowest flowers on the ear to the top, and there those from all the flowers hang out as the silk. The end of each thread of silk (stigma) is especially adapted to receive the pollen and convey its influence to the part of the pistil (ovary), which will in time form the grain. No insects are required by the corn to convey the pollen. The pistillate flowers, in the ears, are placed where the pollen from the tassel will fall directly upon them. But it often happens that, just at the critical time, when pollen is falling, a wind may blow. The wind may carry a part, at least, of the pollen away from a corn plant, and bring pollen from a distance, from another kind of corn. This wind-brought pollen, falling upon the pistils of our corn, will cause a mixture, or as our correspondent would say, it will "hybridize" it. As our varieties of corn are all forms of one species, the term crossing is better than hybridizing to apply to the fertilizing of one variety by the pollen of another. It is in this manner, by the aid of the wind that accidental crossing or mixing takes place. It may be that Mr. H. wishes to cross or hybridize two varieties intentionally as a matter of experiment. In that case he must plant both varieties near together. As soon as tassels appear upon the stalks of the kind selected for seed-bearing, they should be cut away before the flowers open. The ears upon these stalks will receive the pollen of another variety, and the seed will be a mixture.

Chat with Readers.

How He Treats Ants.—*S. C. Sweetser*, Aroostook Co., Me., says: "Tell your readers if they are troubled with ants, to open the hills, pour in a little gas tar, and the ants will leave or die."

Pine Saw Dust.—"*R. M. G.*" asks, if well rotted pine saw-dust has any value as a fertilizer.—In itself the saw-dust can have little or no value. It might be useful to divide and dilute some active fertilizer, in the same manner as peat and muck are used, though not so useful as are peat and muck.

Trouble with Plums.—*H. H. Miller*, Westchester Co., N. Y., writes us that he has three large, thrifty plum trees, which bloom every year, but soon after the blossoms drop, the little plums fall also. Not a dozen plums have matured upon the trees.—We cannot guess in this case. Specimens should have been sent.

Robins and Cherries.—*F. Perrin*, Dutchess Co., N. Y., asks, how robins and other birds can be prevented from taking all his cherries.—The only effective way, so far as we are aware, is to protect the trees by means of nets. In England, netting is sold for the purpose. In this country, old fishing seines, not strong enough for their proper use, have been employed.

Grass for a Name.—*M. Haggar*, Harrison Co., Tex. The specimen of the vigorous grass you send, is no other than the much talked of Chess or Cheat (*Bromus secalinus*). There are people who believe that this grass is a degeuerate wheat, as it is often found as a weed among wheat. This is no more likely to be the case, than that your Jack-ass Rabbit is a degenerate Burro. As a fodder it ranks very low, and the grass should be treated as a weed.

Red Ants.—*T. C. Underhill*, Orange Co., N. Y., asks us to how get rid of red ants.—The best method we ever tried was to smear the surface of plates with lard; these are to be set on shelves, etc., and small bits of stick or chips laid from the edge of the plate to the shelf, to form bridges or causeways for the insects to ascend. When a large number are caught, scald them, and set the trap again. Insect Powder (Pyrethrum), is said to kill them, but we have not tried it.

A Hay Twister Wanted.—In parts of Dakota, and other far western localities, wild hay is used for fuel. Mr. E. A. Forbuth, Kingsbury Co., Dakota, hopes that among the many useful contrivances published by the *American Agriculturist*, some one will contribute a hay-twister, "a cheap and durable machine to save time and labor."—Any one having a twister in use, will please send a drawing, however rude, and description, to help our Dakota friend.

Hungarian Grass.—*W. T. Coolridge*, Spink Co., Dak. Ter., and others.—Hungarian grass rightly managed, is most valuable, whether for green fodder or for hay. It needs land in good condition, and six weeks of good growing weather, with warm nights. Sow a bushel of seed to the acre—some sow a bushel and a half. The most important point with this grass is to cut it early enough. Cut when the heads are in flower, before the seed begins to form. If cut too late, the bristles that surround the grain become hard, and have been known to injure horses.

Keeping Early Apples.—*J. L. Porter*, Seward Co., Neb., asks us how early apples can be kept until the time of autumn fairs, other than in jars of alcohol.—The fair authorities do not regard that in alcohol as fresh fruit. Strong brine, and a mixture of glycerine and water will preserve the fruit, but there would be the same objections to these as to alcohol. Probably if the fruit were picked while yet hard, and packed in tight boxes, which were placed in an ice-house, they might keep. The experiment is worth trying. Fruit so kept would perish soon after being taken from its cool storage.

A Deposit of Lignite.—*Mr. L. A. Page*, Baltimore Co., Md., sends us a sample of Lignite, a vein of which was found in digging a well. He asks if it has any value as a fertilizer.—Lignite is wood, more or less completely converted into coal, and at best has no more fertilizing value than charcoal. If it could be dug without cost, and exposed to freezing, it would probably be converted into a fine powder. In that state it might be used as an absorbent in stables, etc., and then used on the land. Its value would depend almost entirely upon the matters it had absorbed. For this use, it would not pay to dig for it if much below the surface.

A Rare Tree in His Neighborhood.—*Michael Hege*, Franklin Co., Pa., having found a tree new to him, transplanted it to his yard, where it grew so finely that he wishes to know its name.—The leaves and fruit show it to be the Ash-leaved Maple, also called Box Elder (*Negundo aceroides*), and is common along the banks of the Western rivers. Its rapid growth and regular shape, make it valuable as an ornamental tree. Its wood is much like the Red Maple; it is valuable to plant for fuel on account of its rapid growth. Sugar is made from its sap. The tree is raised from the seed, which is often abortive. The seed ripens in the fall, and should be kept through the winter in sand, and sown in spring.

Trouble with Currant and Snow Ball Bushes.—*W. Angus*, Douglas Co., Minn., sends us specimens of leaves, upon the underside of which are numerous small insects, and "the leaves curl up around them."—The insects are one of the many kinds of plant lice. Most of the plant lice are readily destroyed by tobacco water, and these would probably yield to the same treatment. A pound of tobacco stems, removed from the leaf by cigar makers, or other cheap form of tobacco, may be steeped in water. When the liquid is of the color of black tea, apply it by means of a syringe with a curved pipe, that will allow the lower side of the leaves to be reached by it.....The same answer is made to *C. H. Carlton*, Chicot Co., Ark., who sends plum leaves attacked by plant lice.

Orchard Grass.—*H. F. Juneman*, Mercer Co., Ohio. The strange grass found in your friend's meadow is Orchard grass (*Dactylis glomerata*), in England almost universally called Cocks-foot grass. It seems strange that this grass is so little known, as it is very often sent us, and from States much older than Ohio, to ascertain its name. In many respects Orchard grass is vastly superior to the popular Timothy, especially to sow with clover. Those who sell hay, do not sow it for the reason that purchasers will have Timothy, no matter how hard and woody it may be. It is worth while for every farmer not acquainted with Orchard grass, and that will include the majority, to look into its merits, and indeed into those of several other grasses, and see if it is to his interest to always raise Timothy for all purposes.

Peaches from Florida.—*Messrs. Eppinger & Russell*, New York City, send us specimens of two peculiar peaches, grown on their lands at Olustee, Fla., upon trees only eighteen months old.—They were the Honey and Peen-To peaches, and both of Chinese origin. The Honey is small, oval, with a projection or beak at the end opposite the stem. The flesh has an intense sweetness. This is reproduced from seed almost exactly. It has been cultivated at the North by amateurs, but is too small for market. The Peen-to is the flat-peach of China, which we figured several years ago. It is remarkably flattened at both ends, the flesh being at the sides of the small stone, giving the fruit an odd appearance. The flesh is very sweet with a pleasant peach-stone flavor. This has ripened in Georgia, but we are not sure as to its hardiness in the Northern States.

Is Blood fit for Human Food?—*P. Westrum*, Hamilton Co., Iowa. Blood, containing all the elements of the flesh which is formed from it, is regarded as highly nutritive. On the other hand, if the animal from which the blood is taken be diseased in any manner, the germs of that disease are likely to be in the blood, and to communicate the disease to those who use it as food. This objection is answered by those who advocate the use of blood as food, by the assertion that these germs may be killed by cooking. Among Americans there is a general aversion to the use of blood, though their English ancestors were very fond of "black pudding," made with blood, fat, spices, and oat-meal. The Germans use blood largely in the form of sausage. If one wishes to make use of blood as food, we know of no reason why he should not do so, provided the blood is taken from healthy animals.

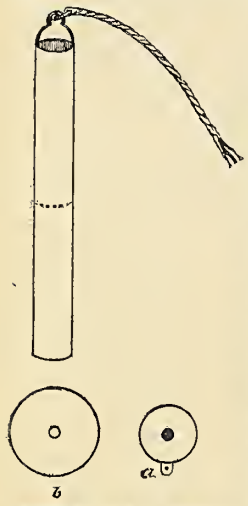
Surgery upon a Tree.—*Mr. H. P. Hubbard*, New Haven Co., Conn., has a favorite Horse Chestnut tree, which, having received some injury when young, had begun to decay. A portion of the trunk had rotted away, leaving a hole about eighteen inches long, and some six or eight inches wide and deep, and this was increasing in size. Wishing to save the tree, Mr. H. carefully dug out all the rotten wood, fixed some boards in front of the hole which was filled up full with cement, mixed thin enough to be poured in. The bark is now growing over the cement, and promises to completely cover it and conceal the injury.—We give this as a hint to others, who may have trees similarly injured, that they would like to save. Common mortar has long been in use for plugging up holes in trees; cement is doubtless much better. Success in the operation will largely depend upon the thoroughness with which the decayed matter is removed; only clean sound wood should be left.

Cut-Worms.—*H. W. Martin*, Windham Co., Conn., asks us: "Is there any way to get rid of cut-worms, other than to hunt and kill."—This is in brief the purport of many letters we have received this season. Dr. A. Oemler, of Georgia, having suffered severe losses from the abundance of cut-worms, tried various remedies. He gives the following as the best remedy he has found. Cabbage or turnip leaves are dipped in a mixture of a tablespoonful of Paris Green to a bucketful of water, which is kept well stirred. Another method of poisoning the leaves is, to first moisten them, and then dust them with a mixture of one part of Paris Green, to twenty parts of flour. The poisoned leaves are placed fifteen or twenty feet apart, both ways, all over the field, taking care to place the leaves prepared with the flour mixture, dusted side down. The Doctor quaintly remarks: "Two such applications, particularly in cloudy weather, at intervals of three or four days, will suffice to allow the cut-worms to make away with themselves, which they generally do with perfect success."

Castor Oil Beans.—*Mr. R. B. Brown*, the President of a large Oil Pressing Company at St. Louis, Mo., writes us with reference to an item in our columns. The company still loans seeds to farmers, and contracts to buy the crops either at a fixed price, or at the current rates at harvest time. There are, however, not at present any restrictions upon the trade in the beans, but they are bought and sold and consigned to dealers the same as any other produce. The prices at St. Louis the past spring and fall, have been from $1.75 to $2.00, and during the past fifteen years, they have ranged from $1.00 to $4.00 per bushel. There is always a demand for them at St. Louis, and the market requires about five hundred thousand bushels annually. Mr. Brown thinks that there are few products so useful to a farmer in a new country, or which, in the absence of railroads, he can so profitably haul a long distance to market, as the Castor Beans, which always bring ready money. In the printed directions sent for treating the crop by Mr. B., it is advised to drop eight or ten seeds in each hill, rather than two or three as stated by us, though but one plant is finally left.

A Bored-Well Bucket.

On the Western dry plains, where water can be reached only at the depth of from seventy to one hundred and twenty feet, the sinking of a well is no small matter. The well is usually bored, and a six or eight-inch zinc pipe inserted. No ordinary pump can be used, but water may be drawn by means of a "bucket," as shown in the engraving. The bucket, which is only very little less in diameter than the well-pipe, consists of joints of zinc-pipe soldered together, with a stiff bail at the top, and a valve at the bottom. The bottom itself is a circular piece of soft wood, usually pine, with a hole in the centre nearly two inches in diameter. On the upper side is a piece of stiff leather for a valve. *b* represents the bottom, on a larger scale than the bucket, and *a*, the leather valve. To stiffen the leather, fasten a convex block of wood on the upper side by means of a tack from beneath, and screw the whole by the shank to the bottom piece. The valve is so simple in construction that any repair is easy. In use, a windlass is employed. As the bucket reaches the top, it is pulled to one side and set vertically in a trough. A peg two or three inches high rises from the bottom of the trough which lifts the valve and allows the water to escape. This apparatus is economical and has proved very satisfactory in daily use.



BUCKET FOR A BORED WELL.

Dog Law.

A valuable shepherd dog belonging to a farmer in Northern New York, while crossing over a neighboring farm, got into an altercation with the neighbor's bull dog, and was so roughly handled in the fight which ensued, that he died in consequence. The owner of the shepherd dog wishes to know whether he can recover its value from the owner of the bull dog. He says that his dog had a gentle disposition, and was not given to fighting.

It is very doubtful whether, under the circumstances, the value of the dog could be recovered. At the English common law, dogs were not regarded as having intrinsic value, and they could not be the subject of larceny (4 Blackstone, 236). But this is not the present American doctrine, for there are now many cases in which damages have been awarded for the unlawful killing of valuable dogs (109 Mass., 273; 60 Ill., 211). In these cases, however, man has generally had a hand. The reported decisions involving the law of dog fights pure and simple, in which man has not been present as a modifying influence, are not numerous. There is fortunately one, a New York case, in which the facts were nearly identical with those above stated, and in that the learned judge discourses as follows:

"**The branch of law applicable to direct conflicts and collisions between dog and dog, is entirely new to me, and this case opens up an entirely new field of investigation. I am constrained to admit total ignorance of the code duello among dogs, or what constitutes a just cause of offense, and justifies a resort to arms, or rather to teeth for redress; whether jealousy is a just cause of war, or what different degrees and kinds of insult or slight, or what violation of the rules of etiquette entitle the injured or offended beast to insist upon prompt and appropriate satisfaction, I know not, and I am glad to know that no nice question upon the conduct of the conflict on the part of the principal actors, arises in this case. It is not claimed upon either side, that the struggle was not in all respects dog-like and fair. Indeed, I was not before aware that it was claimed that any law, human or divine, moral or ceremonial, common or statute, undertook to regulate or control these matters, but supposed that this was one of the few privileges which this class of animals still retained in the domesticated state; that it was one of their reserved rights, not surrendered when they entered into and became a part of the domestic institution, to settle and avenge in their own way, all individual wrongs and insults, without regard to what Blackstone or any other jurist might write, speak, or think, of the 'rights of persons' or the 'rights of things.' I have been a firm believer with the poet in the divine right of dogs to fight, and with him would say:

Let dogs delight to bark and bite,
For God hath made them so;
Let bears and lions growl and fight,
For 'tis their nature to.

***Whatever may have been the character and habits of the victorious dog, there is no evidence that he was the aggressor, or in the wrong, in this particular fight. The plaintiff's dog may have provoked the quarrel, and have caused the fight; and if so, the owner of the victor dog cannot be made responsible for the consequences. There is no evidence that the defendant's dog was a dangerous animal, or one unfit to be kept. The cases cited, in which dogs have attacked human beings, although trespassers, and the owners have been held liable, are not applicable. It is one thing for a dog to be dangerous to human life, and quite another to be unwilling to have strange dogs upon his master's premises. To attack and drive off dogs thus suffered to go at large, to the annoyance, if not the detriment and danger of the public, would be a virtue, and that is all that can be claimed, upon the evidence, was done in this case. Owners of valuable dogs should take care of them, proportioned to their value, and keep them within their own precincts, or under their own eye. It is very proper to invest dogs with some discretion while upon their master's premises, in regard to other dogs, while it is palpably wrong to allow a man to keep a dog, which may, or will, under any circumstances, of his own volition, attack a human being. If owners of dogs, whether valuable or not, suffer them to visit others of their species, particularly if they go uninvited, they must be content to have them put up with dog-fare, and that their reception and treatment shall be hospitable or inhospitable, according to the nature, or particular mood and temper at the time, of the dog visited. The courtesies and hospitalities of dog-life, cannot well be regulated by the judicial tribunals of the land." (Wiley vs. Slater, 22 Barb., 506).

In Michigan there was a statute requiring the owner of every dog to procure a license for it, and keep it collared, and making it lawful for any person to kill any and all dogs going at large, not licensed and collared according to the provisions of the act. While this statute was in force, a large dog meeting a small but valuable one, and observing it not to be properly collared and licensed according to law, proceeded to execute the law upon it by killing it forthwith. The owner of the slain dog brought suit against the owner of the canine executioner, who endeavored to shield himself under the provisions of the statute. But the court said:

"A statute under which a party is, in so summary a manner, to be deprived of his property, by having it destroyed, should not be extended by construction. That dogs have a value, and are the property of their owner, cannot be well denied at the present day, whatever may have been the rule heretofore. And without questioning the power or the State to prescribe such regulations as may be deemed necessary and proper to prevent injury being done by them, yet we cannot say that where the legislature has authorized persons to kill dogs found running at large contrary to the act, the authority thus given to persons can, by construction, be so enlarged as to embrace animals also." (34 Mich., 283).

The foregoing quotations indicate in a general way, the state of the law upon this subject. It is safe to say, that in the case of our inquirer, it is doubtful whether there could be a recovery of damages. The dog at the time of its injury was really a trespasser. It was at least out of its master's control, on an expedition of its own; and if its master allowed it thus to go about, he must take the consequences of such dog fights as it may engage in. It seems, too, that it matters not whether it is, or is not the aggressor in such fights. A dog has its right to drive other dogs off from its master's premises, and if in so doing it injures them, there is no liability on the part of the master. It would be different if the master himself injured the prowling dogs. A man has no right to kill a dog simply because he finds it on his premises, even though he suspects it has been doing mischief (60 Ill., 211). If the dog is known to be a ferocious and dangerous one, and is permitted to run at large by its owner, or escapes through negligent keeping, its owner having knowledge or notice of its vicious disposition, then any person is justified in killing it (13 Johns, 311). So, also, one may kill a dog that has been bitten by a mad dog, or that for any other reason is dangerous to human life (17 Barb., 561), but this is the limit of the right. One cannot set traps for dogs, or leave poisoned meat for them, for in either case he will be liable if they are thereby killed (9 East, 277). Where two dogs get to fighting by reason of their propensity to fight, as dogs often do, it is safe to say that neither owner is liable for consequences.

Where one keeps a dog which he knows has a dangerous and ugly disposition, it is his duty to so restrain it, that no harm can come from its evil propensities. He will be liable if he fails to perform this important duty. And the rule will apply where other dogs are injured, unless it can be clearly shown that the injured dog was trespassing, or that it was engaged in a common dog fight.

A Wire Tightener.

Mr. W. Fulmer, Allegheny Co., Pa., sends us a model of a wire tightener, from which the accompanying engraving is made. It consists of a long



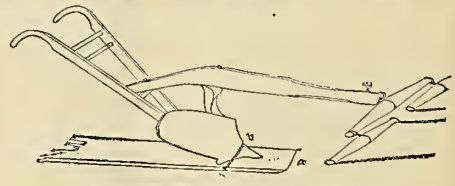
wooden lever, with two pieces of iron fastened to it, as shown in the cut. The ends of the iron parts facing each other are made rough, to firmly hold the wire, which passes between. Though similar wire tighteners are furnished by the wire manufacturers, we present this illustration in order to enable every farmer, who has not one, to make a convenient and serviceable tightener for himself.

Kill the Late Weeds.

The fight with the weeds in the corn-field should not stop with the cultivator. We have frequently seen farmers strive manfully against the pests until midsummer, and then, through negligence, subject themselves to annoyance through the next season. Some weeds have a limited season of growth, and if kept rooted out until midsummer, will rarely come up again; others continue growing until severe frosts come. An old Illinois farmer said a cockleburr would come up in the morning, grow until four in the afternoon, and mature seeds before the frost could kill it that night. This is an exaggeration, yet the cockleburr must be fought until there are heavy frosts. The velvet-leaf, Jimson, and rag-weeds, will commence growth almost as late. Weeds are very prolific, and an occasional one gone to seed in the corn-field, will insure a good crop the next season. Corn should not be cultivated after it is tasseled, but the weeds can be cut out without disturbing the soil. For this purpose we have seen a short scythe used, but we much prefer a hoe with a sharp edge.

A Plow Plank.

A convenient device for moving a plow from one part of the farm to another, is shown in the engraving. It consists of an inch and a half plank,



A DRAW PLANK FOR A PLOW.

one foot wide and eight feet long. The front end, *a*, is rounded so that it may slide along easily like a stone boat. A piece of stout chain, eighteen inches long, is fastened to the sides of the plank at *b*, *b*. The point of the plow is placed under this chain, and is held there when the team is moving. A man standing on the rear end of the plank, can hold the plow and drive the team. A plow thus "shod," will easily pass over a meadow or lawn.

The New York Fishery Commission.

ROBERT B. ROOSEVELT.

The first Legislative enactment in reference to the artificial culture of fish was passed in the State of New York in the year 1868. It was followed up in the succeeding year, that of 1869, by the creation of a Fishery Commission, consisting of ex-Governor Horatio Seymour, Seth Green and Robert B. Roosevelt. Mr. Green withdrew in order to accept the superintendency of the work, and Mr. Seymour subsequently resigned. The Board today is composed of Robert B. Roosevelt, the President, Gen. Richard U. Sherman, Secretary, Mr. Eugene G. Blackford and Mr. William H. Bowman. The first work done by the Commission was the hatching of 2,604,000 shad, 280,000 salmon-trout and 1,000,000 white-fish in the year 1870. It was not until the year 1875 that the Commission was authorized to purchase a State Establishment and commence the breeding of trout. The place chosen for this purpose was the old hatchery which had once belonged to Seth Green, and where he had achieved his reputation and made the first real successes in fish breeding in this country. It had been sold to Mr. Collins, but as it was regarded as one of the most eligible sites in the State, for such an enterprise, it was purchased at a cost of fourteen thousand dollars, and put at once in efficient and practical, but by no means showy, order. The record of the tumble down shanties, and board-banked ponds, is far from a discreditable one, and will answer the question often and properly asked, whether fish culture has paid.

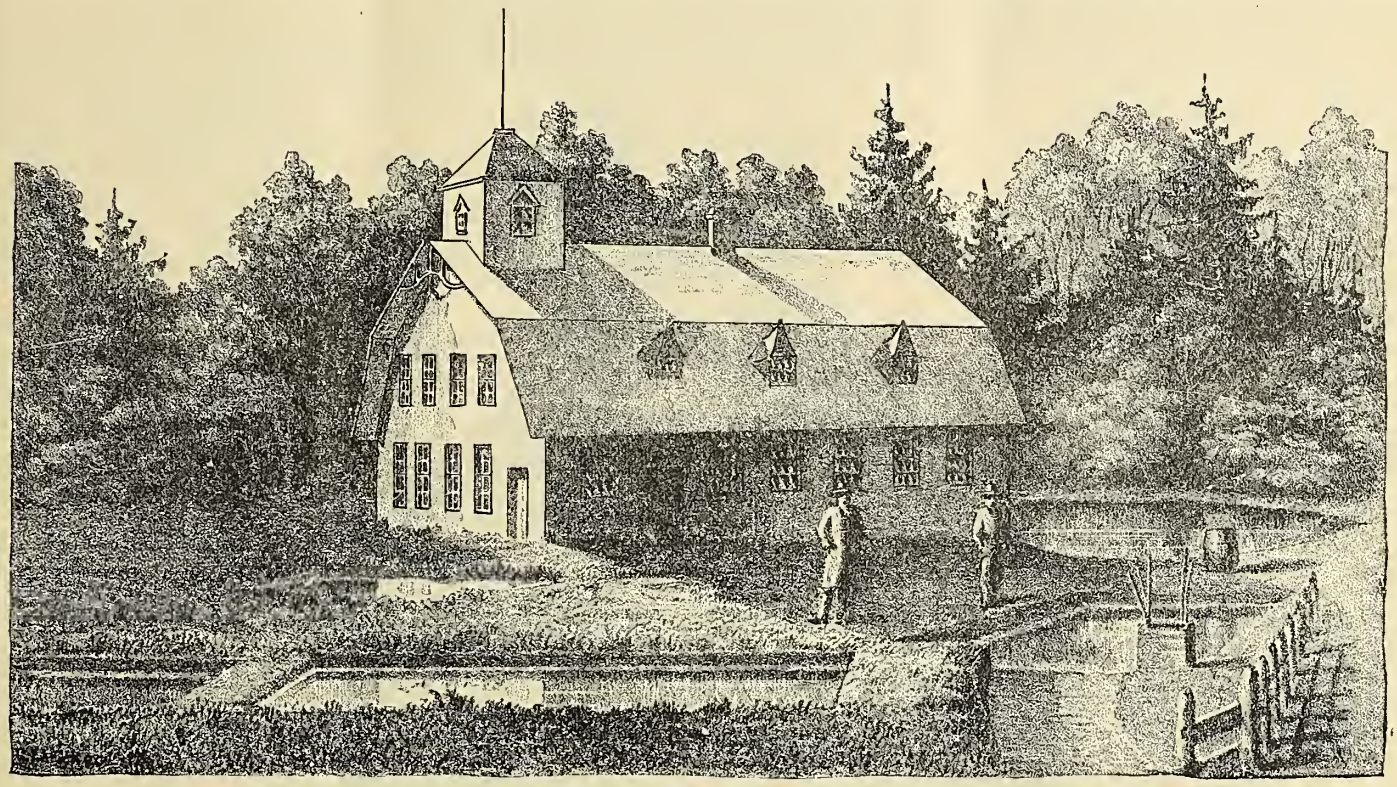
It was stated by the Hon. Theodore Lyman, at the last meeting of the Fish-Cultural Society in Washington that $1,300,000 had been expended in fish culture in this country alone. If so, but a very small portion of this vast sum has been expended in the State of New York, and the larger part of it has been expended by the United States Commission, in scientific investigations, in displays at foreign exhibitions, in studying the habits of fish, in printing learned disquisitions on ichthyology, and in exploring the bottom of the ocean for new forms of piscatory life, all proper expenditures, but cannot in any way be construed into fish culture.

The amount of money expended by the New York Commission from the year 1868 to 1883 inclusive is $206,131.93, including the sum paid for the hatchery house at Caledonia, and the fitting up of a subordinate establishment at Cold Spring on Long Island. For thirteen years there has been an annual distribution of fish—a year being required to commence operations, and one being lost by the veto of the appropriation by Gov. Cornell. During that time there have been hatched, and turned loose, in their native or other appropriate waters in this State, 55,554,300 shad, 11,519,000 salmon trout, 6,909,200 brook trout, 4,499,000 California trout, 45,300 hybrid trout, 2,000 Kennebec salmon, 678,000 California salmon, 18,000 land-locked salmon, 2,480,000 white-fish, 900,000 frost fish, 34,920 mature black bass, 3,000 mature pike-perch, 155,000 sturgeons, beside other minor fish. The first distribution of brook trout was made in 1874, when the Establishment that was afterwards purchased was leased with a view to its subsequent acquisition.

The California or rainbow trout all came from one lot of three hundred eggs purchased in California from a private individual, and received not in the best of condition. The first distribution was made in 1879, and some of the original stock are still living, and promise to keep up their fertility. The hybrids are a cross between the lake trout and brook trout, and promise an improvement on both species. They have shown themselves to be abundantly reproductive, although, among the eggs, are found more unimpregnated ones than among the pure breeds of either species.

The Kennebec salmon did not seem to be wanted in any part of the State, and so, although many were hatched, they were turned loose in Caledonia Brook, and no account was kept of them. Little was done with California salmon as it was not found, in a single instance, that they survived their journey to the ocean, or returned to their place of birth. The black bass and allied species are not hatched at all, they are distributed to new or depleted waters. It is found that they can attend to their own reproduction as well as it can be done for them. They have the instinct not only of building their nests, but of watching over and bringing up their young. Indeed it is doubted whether black bass fry could live unless they had the care of their parents. A few pairs of black bass will stock a lake or river if they are not fished out for a few years.

Immense strides have been made in fish culture since the old house was built, and before it was pulled down to give place to the more pretentious structure, shown in the engraving given below. The New York Commission can claim the credit for originating most of these discoveries. Mr. Seth Green seems to have a genius for applying the exact remedy for every need in fish culture, and he has been well seconded by his assistants, and especially by his brother, Monroe A. Green, who is one of the ablest practical fish culturists in the country. He discovered the process of dry impregnation, one of the first great strides in the art, and which was afterwards imported from Europe, whither he had contributed it as a scientific discovery. He afterwards invented the shad-hatching box, which contains the underlying principle of all subsequent modifications of hatching jars, boxes, or implements, taking the idea of the upward motion of water rising from a spring as its foundation theory. Mr. Green introduced the use of layers of trays instead of placing single trays one beside the other, and invented the carrying-box with flannel drawers for the transportation of eggs, the methods of packing eggs still in vogue, and a thousand and one minutiæ, many of which have been imitated and claimed by others. To-day, now that the ancient time-eaten, bug-bored and weather-stained shanty has been replaced by a reputable building, with some pretentions to architectural attractions, and the ponds have been rebuilt with walls which will hold water and trout securely, and in spite of the fact that the State owns no individual right of entrance, and not half enough ground for ponds, there is no establishment in the world where as good work is done as at the hatchery at Caledonia.



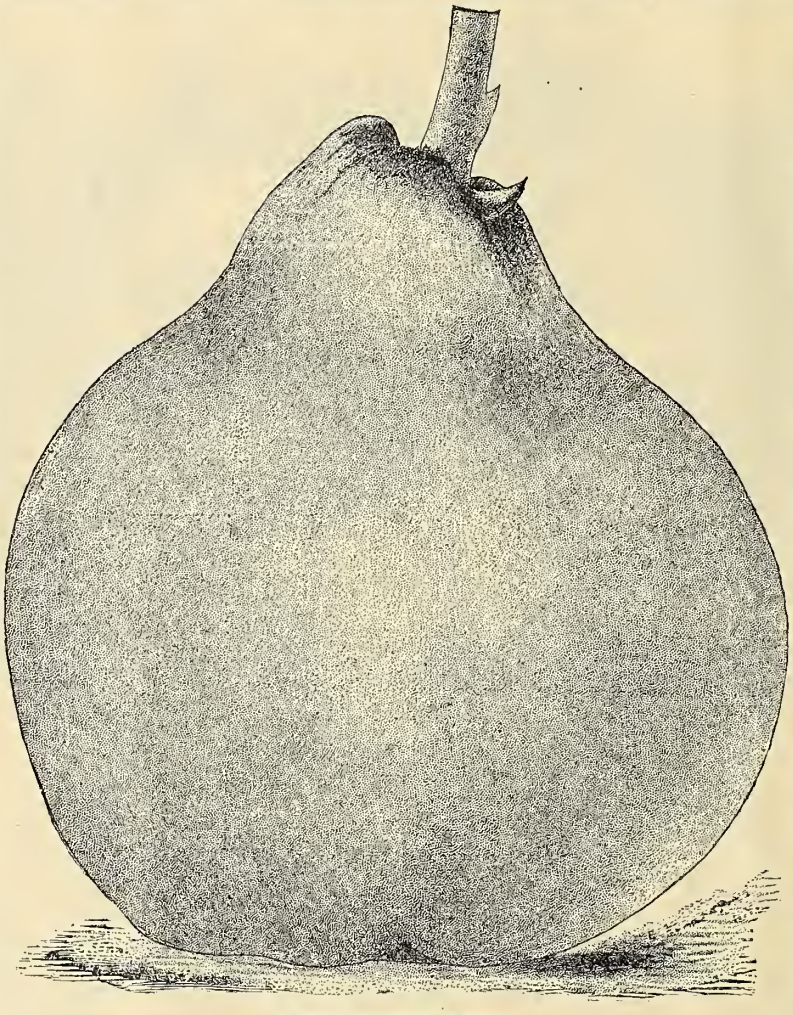
THE NEW FISH-HATCHING HOUSE AT CALEDONIA, N. Y.

Engraved for the American Agriculturist.

Farmers should bear in mind that water-culture can be made a part of agriculture, not that it is expected that farmers should devote their time to hatching the eggs of trout, or of any of the more tender varieties, or of necessity to the hatching of any eggs at all, if they have not the special taste and the leisure, but where there are streams on, or adjoining the farm, they should give their attention to introducing the proper kind of fish, especially such as one of the different species of bass. These will increase rapidly, and take care of their own young, and by devouring useless varieties, will supply food for the table, to say nothing of that which most of us enjoy, a day's sport with the rod. Such fish and full instructions can always be obtained from the Superintendent at Caledonia.

Improvement in the Quince.—Meech's Prolific.

From very early days in the history of fruit culture, the "Apple-shaped," or "Orange" quince, and the "Pear-shaped," were the only varieties of the quince regarded as the best for fruit, while for stocks upon which to graft the pear, the "Angers," and one or two others, were commended. These sorts for a long time made up the rather meagre list of quinces. Indeed, it was only when American seedlings were brought to notice, that there was any improvement in the quince. "Rea's Mammoth" was so much larger, handsomer and better than any of the old varieties, that it convinced people that the quince was capable of great improvement, and other new varieties since introduced, have been regarded with favor. Notable among them, are the "Champion," described in these pages when it was first offered, and "Meech's Prolific." All that is known about the history of the variety is, that one of the early settlers in Vineland brought the tree from Connecticut. It then had no distinctive name. The tree finally fell into the hands of Rev. W. W. Meech, of New Jersey, whose long and practical experience with quinces has enabled him to both instruct and entertain our readers. He planted it with his other varieties in order to test it, and it proved to be superior to all. The tree is readily propagated from cuttings, grows rapidly, and comes into bearing very early. Out of two hundred and eight trees propagated last year (1883), fifty-seven bore blossoms the past spring. There is abundant evidence that the variety is properly named "Prolific," as the fruit is so abundant as to require severe thinning. The flowers are unusually large, making the tree when in bloom very ornamental. The obscure pyriform shape of the fruit is shown in the engraving, which is one-third reduced. The fruit is large, those weighing twelve to fifteen ounces are not uncommon, and they have been known to reach eighteen ounces. Eighty average quinces of this variety make a bushel. The fruit is at first covered with a dense whitish down, which protects it from many insect enemies, and when ripe is of a fine orange yellow, with a delicious fragrance. As to the quality of the fruit, there is abundant testimony from those who have tried it. One writer says: "It cooks as tender as a peach." While its leading characteristic is its prolific bearing, this variety, it is claimed, possesses in the highest degree, all other qualities that go to the making up of a first class quince.



A NEW PROLIFIC QUINCE.

Cats on the Farm.

Cats ought to have an honored place on the farm, but too often they have no place at all. This is because they are kept at the house, fondled by the pet-loving children, and fed by the kind-hearted women until they become lazy and worthless. The farmer esteems cats less highly than dogs; but the former are sometimes of the greater value to him. Barn cats should rarely be allowed to come to the house, and never be fed there. All that they need is plenty of milk; compel them to get the rest of their living, and they will find it about the barn, granaries, cribs, sheds, and in the fields. A good mouser is worth ten cents per day about a granary, crib, or barn. Mice not only destroy grain, but make it filthy for stock; they nibble sacks and implements, and do much other mischief. A good cat will destroy large rats as well as the young ones. We have an old Maltese Tom, which gets his living by catching ground-mice in the orchard and garden, and is therefore a valuable cat. At this season, when barns, granaries, and cribs are filled, a cat is doubly useful. Give Tom and Tabby a fair trial, and you will always keep cats. S.

Do Not Gall the Horses.

The rush of mid-summer farm work is very trying on horse-flesh. The side draft of a reaper or mowing machine frequently causes galled necks and shoulders. The usually tough skin of the horse is softened by the flow of perspiration, and a rough, ill-fitting collar, a useless, chafing back-pad, or a projecting buckle quickly produces pain. No one can blame a horse for faltering, when ordered to press its raw and bleeding shoulder against the collar, that will sink into its bruised flesh. To avoid galls, all parts of the harness should fit closely. A laboring man is careful in buying boots of proper size. He could not endure twelve hours of hard labor while his feet were cramped within an unusually small space, or in boots so large that his feet slip in them and wear the skin away by constant friction. As a rule, horses are worked in too large collars. A soft pad placed under such will prevent galling. When the animals are brought in from work, the harness should be removed at once and cleaned, and the necks and shoulders well washed with castile soap and water. After bathing the worn parts at night, rub on some softening oil. Use no oil in the morning. The collar should not be oiled, as it will then gather dirt through the day and form a rough coating, that will chafe the exposed parts. Keep all parts of the harness clean, especially those that press upon the horse, and see that the same is true of the portions of the horse against which the harness presses. It is much easier to prevent than to cure a gall.

Feeding and Care of Farm Animals.

PRIZE ARTICLE.—BY "A WESTERN FARMER."

It is a curious fact that almost every farmer who keeps five or six kinds of stock, gives nearly his whole attention to one or two of them. A man who is fond of horses and cattle, cares little for sheep or hogs; one who likes sheep and hogs knows little about poultry; one who takes pride in his poultry, pays little attention to horses and cattle, and so on. Farmers who thoroughly understand the care of horses, cattle, sheep, hogs, and poultry, feel an equal interest in each, and can make all profitable, are not as common as they should be in this or any other country.

Horses.

STABLE.—The horse stable should be warm in winter, and cool in summer; light, well ventilated, and so arranged that it may be darkened, and have wire screens over the windows to exclude flies. The floor, whether of plank, ashes, or other material, should be dry, and slope back gradually from the manger. The manger and feed-box should be grain tight, with bottom, at least, a foot above the floor. In fly time, darken the stable when the horses are taken in—close the doors and open the windows. Rest and comfort is thus assured, and their value to working horses can not be given in dollars and cents.

FEEDING.—Intelligent observation and practical experiment enable the owner to ascertain how much food a horse should have. Of two horses, of equal size and weight, one may require one-third more food than the other, to keep it in equally good order and working condition. When at steady work, the morning meal may consist of cut hay, and shelled corn and oats mixed; the noon meal, oats and corn, and a little cut hay. At night, feed two-thirds as much oats and corn as at other meals, a few pieces of carrots, and as much uncut hay as the horse will eat. When at rest, feed lightly—just enough to keep in good condition; mostly oats and uncut hay. Clean out the manger and feed-box before each meal. Clean, bright timothy hay is superior to any other for horses. If cut just before blossoming, well cured, and stored in a dry place, it will be devoid of that fine, pungent dust—the pollen of the flowers—found in it, when cut in full blossom. If at all dusty, it should be dampened when fed. In case there is no barn room available for storing, it will pay one hundred per cent on the cost, to erect a shed twelve feet wide, and twenty to thirty feet long for it. The floor may be strong poles or rails, resting on block or brick pillars, eighteen inches high. Oats should be clean and dry, never musty, and fed to working horses in combination with shelled corn. For horses at rest, they may be fed alone. Corn should be well ripened, kept dry, and shelled as fed. It should be mixed with oats, in the proportion of one quart of corn to two of oats. Corn on the ear is productive of lampass, and if the horse has defective teeth, much of it is swallowed without being properly masticated, producing flatulence and colic. One or two carrots cut fine, and mixed with the evening meal, are very beneficial in the absence of grass, as they tend to keep the bowels open and regular. They are most excellent for horses in winter and spring. Bran is a useful article of diet. Wetted, mixed with half its bulk of oats, slightly salted, and fed twice a week, its effects are very beneficial, especially to carriage horses.

Kentucky Blue-grass (*Poa pratensis*) makes the

best horse pasturage in the world. The next best is a mixture of Orchard-grass (*Dactylis glomorata*), Red Top (*Agrostis vulgaris*, and Meadow Fescue (*Festuca pratensis*). Turn horses into the pasture at every opportunity. Nothing does a dry fed, steadily worked horse more good than a few weeks, or even days, on grass.

It is very important that the drinking water be pure. The well should not he in the barn-yard, or it is certain to become polluted. Good cistern water is best, if it can be obtained. Water before meals. If the horse is very hot, give half a pailful; feed uncut hay and rub down. When somewhat cooled and dry, give all it wants, then feed the grain. In summer pump a large trough full an hour before the horses come from the field; let them drink about three gallons each, then wait a moment, and afterwards permit them take all they want.

Salt once a week is often enough on dry feed. When in pasture, it should he placed where the horses can obtain it as desired. Provide plenty of bedding, and see that it is dry. Shake it up the last thing at night, and remove all that is wet or soiled. Straw, forest leaves, sawdust, or any material that is dry and absorbent, is good. Use the currycomb and brush, whether the animal is dirty or not. Go over the animal from head to foot, once a day at least. Be very careful not to scratch or hurt it in the least. Good horses are often made vicious by rough currying. If it is thin haired and tender, use a stiff bristle or wire brush, instead of a currycomb. Wash off the dirt that is difficult to remove, then rub dry with a cloth and brush. Comh out the mane and tail, and keep them smooth. There is much pride in a horse, and it should he promoted rather than restrained.

Harness a horse gently; keep the collar clean and have it fit. Adjust the harness so that no part hangs loose, or chafes. Do not check tight, or use blinders. Fly-nets for horses are invaluable in fly time. A horse will always do its utmost willingly for a kind master. Do not worry the life of a fast, high-spirited horse, hy working it with a slow one. After a day's work in summer, turn it into a yard to roll and straighten the limbs. Never let a horse stand out of doors unblanketed after driving in cold weather. Do not worry a horse wheu driving by continually clucking or talking to him. Teach the animal to start and stop by voice, and to obey a light movement of the reins. A horse may be taught a great deal hy au intelligent driver, but the words of command should be few and distinctly pronounced.

Breeding.—Raise good colts, they cost no more to feed and care for than scrubs, and bring over twice as much in the market. The sire should be absolutely sound in wind and limb, and the dam, well shaped, and of good size. Light work will do her no harm; heavy work will. The average period of gestation is three hundred and forty seven days. Keep the dam in a well-bedded loose box, a week or ten days previous to foaling, and feed hay, carrots, bran, potatoes, and very little, if any grain. Do not work her until the colt is at least six weeks old, then keep it in the stable during the day, and let both run in the pasture at night. As soon as the colt shows a disposition to eat, give it some oats and bran, mixed with a little shelled corn and chopped carrots. Provide it with plenty of water during the day. After weaning, treat it like a horse; halter, curry, and handle, in the same manner. Feed it the hest you have, and keep its coat smooth, and in good condition, hy all means. When two years old, harness, and drive to a light wagon. Trained colts never require breaking, and they are worth from ten to twenty-five per cent more than wild, unbroken colts, simply because their action is already developed under harness, and they may he termed a finished product.

Diseases, Injuries, Etc.—Farmers are not supposed to be veterinary surgeons, and it is rarely advisable for them to attempt to doctor stock, when they do not understand the nature of the ailment; for they are almost certain to do more harm than good. Whenever stock is affected by any disease that is not understood, it is hest to refer the matter to a skilled veterinary surgeon at once. There are a few ailments any farmer can attend to; the most common is colic. Feed and water as advised, and colic will be almost unknown. A pint of oil, with one ounce of sweet spirits of nitre, is an excellent remedy. Injections of warm water or soapsuds, and walking about, will frequently cure in a short time. For Scratches, keep the legs clean, and the bedding and stall dry. Should a long spell of wet weather induce this trouble, get olive oil, eight ounces; liquor subacetate of lead, four ounces; carbolic acid, two drams; mix, and apply with a sponge, once a day. Keep the legs and feet perfectly clean and dry until cured. Feed lightly, carrots, bran mashes, etc. Lampass is caused chiefly by hard food, like corn on the cob. Soft food cures it. The man who burns it out with a hot iron, should have his toothache cured in the same manner. To prevent galled shoulders, use a perfect fitting collar. In case the skin on the shoulders is thin and liable to break easily, use a light, wool-faced collar, or a sweat-collar, and bathe the shoulders with strongly-salted cold water, noon and night. If the skin is abraded, apply a lotion, made as follows: Sugar of lead, one ounce; sulphate of zinc, two ounces; rain water, one quart. Give rest until entirely cured. If a horse has been accidentally exposed aud taken cold, lost his appetite, is stiff, and has a staring coat, blanket, and put him in a warm, well-bedded loose box. Give tepid water to drink, and feed with a mixture of bran and oats wetted. Once a day, mix with his feed, two drams powdered gentian root, one dram ginger, three drams saltpetre. This mixture is superior to any "condition powder," and is excellent for horses out of condition.

A House for $100.

CYRIL MARR, SELMA, CAL.

It often occurs in these days of preëmption and homestead rights, that a person having a very limited capital, wishes to construct a dwelling with the least possible outlay. To do this requires not a little tact, as well as a fair share of mechanical knowledge. The writer has constructed and lived in such a house for several months. Though small, it afforded fair accommodations for five persons, three adults and two children. The size of the entire structure was twelve by eighteen feet, with walls 12 feet high. Figure 1 shows the exterior of the house. Figure 2 gives the lower story, consisting of a sitting-room nine and one-half by twelve feet, and a kitchen six and one-half by twelve feet. This allows two feet for stairway,

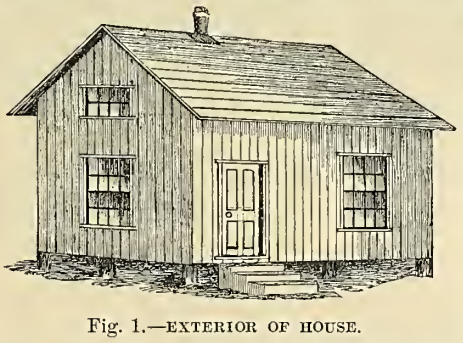


Fig. 1.—EXTERIOR OF HOUSE.

with eight feet between floors, and stairs built as shown. There is room for a passage between the sitting-room and kitchen at one end, and for a closet at the other. Figure 3 shows a bedroom, nine and one-half by twelve feet, and another eight and one-half by twelve feet. This last, when not needed for a bedroom, can be used as a store-room. This upper story is lighted by a half-window in each end of the house.

The Estimate for Material is as follows:

3 pieces, 2 by 4 in., 18 feet long, for sills for foundation.
9 pieces, 2 by 4 in., 12 feet long, for floor joists.
26 pieces, 1 by 6 in., 18 feet long, for floor.
36 pieces, 1 by 12 in., 12 feet long, for two long walls.
8 pieces, 1 by 12 in., 14 feet long, for ends.
8 pieces, 1 by 12 in., 16 feet long, for ends.
8 pieces, 1 by 12 in., 18 feet long, for ends.
36 pieces, 1 by 4 in., 12 feet long, for battens for long walls.
8 pieces, 1 by 4 in., 14 feet long, for battens for ends.
8 pieces, 1 by 4 in., 16 feet long, for battens for ends.
8 pieces, 1 by 4 in., 18 feet long, for battens for ends.
2 pieces, 2 by 4 in., 18 feet long, for upper long plates.
2 pieces, 2 by 4 in., 12 feet long, for upper end plates.
2 pieces, 2 by 4 in., 18 feet long, for plates for upper floor.
9 pieces, 2 by 4 in., 12 feet long, for joists for upper floor.
26 pieces, 1 by 6 in., 18 feet long, for upper floor.
7 pieces, 2 by 4 in., 18 feet long, for rafters.
20 pieces, 1 by 4 in., 12 feet long, for sheathing.
10 pieces, 1 by 4 in., 14 feet long, for sheathing.
4 pieces, 1 by 12 in., 14 feet long, for partition above&below
4 pieces, 1 by 12 in., 16 feet long, for partition above&below
4 pieces, 1 by 12 in., 18 feet long, for partition above&below
9 pieces, 1 by 12 in., 12 feet long, for side wall of stairs.
2 pieces, 1 by 12 in., 12 feet long, for stiles for stairs.
3 pieces, 1 by 12 in., 12 feet long, for steps for stairs.
2 pieces, 1 by 4 in., 18 feet long, for scrub-board.
4 pieces, 1 by 4 in., 12 feet long, for scrub-board.
Assorted 72 feet for door and window casing.
Assorted 36 feet for foundation.

The lumber at the ruling prices here would now cost	$65.00
Shakes (split boards)	7.50
1 door, $1.60; 2 windows, @ $2.00, $4.00; 1 window, $2.75.	8.35
1 lock and 1 pair hinges, $0.65; nails, $4.50	5.15
Lining cloth, $2.50; lining tacks, $0.50; wall paper, $1.00.	4.00
Total	$90.00

The ten dollars short of the amount mentioned, will allow for any minor changes that may make

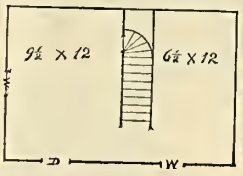


Fig. 2.—FIRST FLOOR.

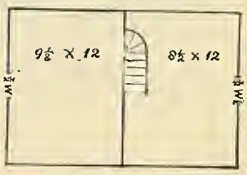


Fig. 3.—UPPER FLOOR.

the plan conform to the desires of the builder; or, in the event of extra hire or freight-hills, this amount will be sufficient. The plan and estimate here given presumes that the owner does his own work. There is no particular skill required. Even these figures may be cut down, as old lumber can sometimes be procured for foundation and braces. Sheathing should project six inches at the ends of the building. Strips, one by four, nailed between pieces of sheathing and lengthwise, if rafters, will make the upper story tight enough for comfort.

A Money-Crop for Next Spring.

In the spring every one wants greens of some kind, and they meet with a ready sale. By far the best and most profitable crop of this kind is spinach. It is easily raised, and farmers who supply the markets will find it very convenient to have a crop that will bring ready money early in the season. To have a crop of spinach next spring, we must begin now. The seed is not to he sown until next month, but the preparation of the soil may be made this month. No matter how highly manured the land may have been for the previous crop, it can hardly be too rich for spinach, and a liberal dressing of manure well worked into the soil will pay. The soil should be brought into a fine condition, by thorough plowing, harrowing, and rolling, and he ready for sowing next month. If to be treated as a farm crop, mark out the rows at distances suited to the narrowest width of the cultivator, say twenty-one to twenty-four inches apart, and sow an abundance of seed. Set the drill to drop the seeds half au inch apart or less. Some cultivators prefer to sow hy hand. What is of special importance in sowing spinach, especially at this season, is to bring the soil in close contact with the seeds. This may he done by the use of a moderately heavy roller, or by going over the rows and pressing the soil firmly upon the seed with the feet. Attention to this, especially in a dry season, may make all the difference between a good stand and a poor one. The time for sowing in the climate of New York City, is from the first to the fifteenth of September; in cooler climates the first named date is preferable. When the plants are up, the spaces between the rows must be kept well cultivated, and the plants thinned to two or three inches in the row. This will leave the plants twice as thick as they should be, and a final thinning to five or six inches should be made. The plants at this thinning should be carefully cut out with a knife or with a sharp, three-cornered hoe, and the thinnings used or marketed. At the approach of winter, in all severe localities, it is well to give the spinach a light covering of straw or other litter, to prevent injury from hard freezing. There is no difference in the hardiness between the kinds catalogued as "winter" and "summer" spinach.

Australian Wool Farming.

The great staple of Australia, fertile as the island continent is in most natural and cultivated productions, is wool. Except where it is actually a desert, the country offers the best grazing for sheep in the world. Open pastures and park-like woods shadowing a perennially rich greensward, extend in vast stretches over a land whose only drawback is scantiness of water. But where the crops of the soil will not flourish, those on the soil will. The millions of acres which the farmer cannot make productive, bring wealth to the grazier.

Previous to the gold discoveries, thirty odd years ago, Australia was essentially a pastoral country, and since the gold fever has become a thing of the past the farmer has supplanted the miner again. Some of the greatest of the vast fortunes won by wool growing, originated in the mining excitement. Farmers and graziers abandoned their farms to look for swift wealth in the diggings, and wise men bought them in and thus laid the foundations of permanent prosperity. The writer met one sheep king in Queensland, who, in 1852, was a laborer on a farm. The owner caught the gold fever, and his hired man bought him out with his savings. As one farmer after another in the district succumbed to the craze, the long-headed laborer borrowed and scraped together money enough to purchase their estates at the low prices to which all property but mining claims had fallen. To-day he owns an estate larger than some European principalities, and counts his wealth by millions. One of his foremen is a son of his old employer.

Australian shepherds lead a life nearly as patriarchial as a Tartar's. A wild and lonely existence is theirs, and only men of iron physique could undergo it. Two shepherds always chum together, one acting as hut-keeper, while the other is out upon the range. They travel from range to range as the grazing grows poor, and the country is dotted with the rude slab huts they find shelter in. Their fare is of the rudest, consisting of "damper," a sort of bread made of flour and water, baked in the wood embers, mutton and tea. Of late years the luxury of canned meats occasionally falls to their share. Tobacco is their only luxury, and a battle with the fleas which infest their huts, their only rest. It is not so surprising



THE "WOOL-WORM."

that such men celebrate a visit to town with a debauch, and like our own cow-boys, sometimes become a terror to the peaceful townsmen.

The Australian wool-grower's greatest enemies are the catarrh, the scab, the foot-rot, which is caused by marshy grazing grounds, bad servants who neglect the flocks, and the wild dogs. The latter were once a formidable foe indeed, but their destructive hordes have been greatly decimated by the hunters, who shot them by thousands, to obtain the bounty offered for their scalps. These dogs will hunt a flock of sheep as systematically as men conduct a drive of deer. They surround and close in on them, rending and devouring all in their path. Great flocks are often stampeded by them, when the sheep run until they drop exhausted, or struggle into some stream and are drowned.

The shepherd's dog is as sagacious and true a friend to his woolly charges as the wild dog is a relentless foe. Sheep raising has produced in Australia a peculiar breed of dogs, different in



AN AUSTRALIAN SHEPHERD.

many appearances from the European shepherd dog, but akin to it in all good qualities. These dogs seem to know all the sheep in a flock. They will hunt for stragglers miles away from the hut, and either drive them in or watch them, if they happen to be exhausted, until they gather sufficient strength to walk. It is a common thing in traversing the grazing country, to come upon one of these noble brutes on guard over a strayed or broken down sheep, and woe betide the stranger who attempts to lay hands on his helpless protege.

In addition to the wool crop, the Australians derive a huge revenue from the boiling down of sheep. Boiling down was originally resorted to on the occasion of a panic forty years ago, when sheep could not be sold in the local market. Then the surplus of the herds was reduced to tallow, and a market for that commodity opened in England. Some years after, huge canneries for the preservation of the mutton were started with satisfactory results. Now the sheep grower makes capital out of the flesh and fat of his flocks, as well as their wool. Another extensive trade is the preparation by salting and smoking of mutton hams, which are used for ship's food throughout the Indian seas.

The busy time on the Australian ranges is in the shearing season. As that time comes around, the wool tramps put in their appearance, tramping over the plains towards the different sheep stations. The wool tramp is one of those nomads like our harvest tramps in the West, whose labor is very useful when it comes in the right time, and who at all other periods are utterly useless beings to themselves and all the world.

A sheep station is the centre or headquarters of a range. Here the proprietor lives, surrounded by his overseers and storekeepers. In addition to the proprietor's and his subordinates' houses, the station consists of a few shops, some barracks for the shepherds, and paddocks, covering hundreds of acres, all fenced and posted as stoutly as can be. The largest buildings at a station are the shearing and sorting sheds, and all important stations now appear to have huge steam presses for bailing the wool. At the smaller stations the hand-press is used. Small sheep-owners drive their herds in to the large stations and there sell the wool.

This disposition of the wool-clip, has given existence to a character in the shape of the buyer of wool, who is known among the small growers as the "wool-worm." The wool-worm will buy a clip while it is yet on the flock, and the improvident sheepmen take advantage of this and pay usurious interest for the accommodation. These wool buyers have the country districted. One never trenches on the other's ground, and one and all are said to be willing to advance money on the clips several years ahead. The result is that many flocks are under perpetual mortgages, and in the end fall into the hands of the usurers, who sell them at once, for they find much more profit in buying wool than in raising it.

As the shearing season comes around, the flocks are driven to the stations where they belong. Watering carts keep the dust laid, as day after day the woolly legions come marching into the paddocks. If the weather is rainy, they are sheltered in the large "sweating sheds," into which from two thousand to three thousand sheep can be packed at a time. When the campaign is ready to open, the "yarders" are mustered to duty, which is to keep the shearers supplied with subjects. Then the animals pour into the shearing sheds in a steady stream. They are kept in pens there until sheared, and then turned loose to be marked and penned until they are driven out on the ranges again.

The fleece having been clipped, is passed to the wool tables, where it is sorted and "skirted," or cleaned of the rough dirt which adheres to it. Australian wool is divided into first, second, and third qualities, before it goes to the press.

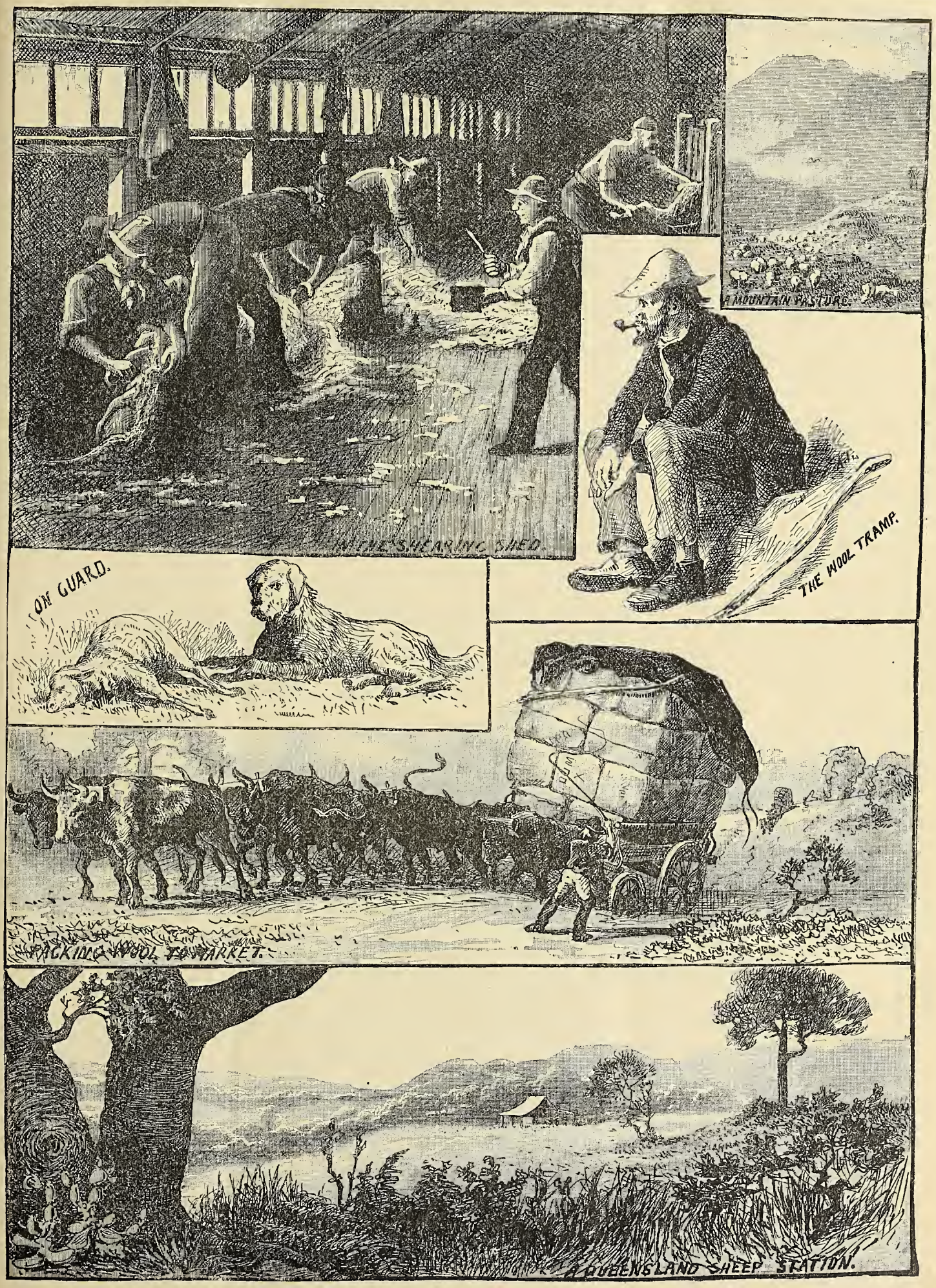
The laborers at the station work day and night in shearing time. From the proprietor and manager, down to the wool tramp, they enjoy only the briefest rest. The wool having been pressed, the bales are weighed and marked with the distinguishing marks of the station. The transportation to market, or the nearest railroad station, takes place in huge platform wagons, drawn by six or eight horses or oxen. These wagons carry from thirty to forty bales to a load.

The station fills up with pedlers of all sorts of wares, not forgetting the "sly grogsman," who is the master of a bar-room on wheels. Between these and the regular shop-keepers, most of the money made by the laborers at the shearing, is gotten rid of before they leave. The shearing over, the clipped flocks straggle out to the ranges again, the wool tramp takes up his stick and departs, the proprietor makes his annual trip to the nearest seaport to settle business with his agent,



A PROPRIETOR.

and the station goes to sleep again. The lives of the sheep kings of Australia are not subject to the privations to which the shepherds are exposed of course, but they have also many uneasinesses and discomforts attached to them. Existence at the stations is lonely and monotonous in itself, and the fare, however abundant, by no means varied or elegant. Few of the sheep kings live as well as the American farmer, not because they cannot afford to, but because all their money cannot buy a luxury or comfort which does not exist. Their flocks and their wool-clip form the topics which engross them.



AMONG THE AUSTRALIAN MERINOES.

Drawn and Engraved for the American Agriculturist.

Among the Farmers.

New Series.—No. 4.

COL. MASON C. WELD.

How to be of Real Use to One's Neighbors.

Farmers are to be depended upon, take them all together, to be conservative to the detriment of their own interests, even when special effort is made to demonstrate to them in a *quasi*-benevolent way, in what course their real interest lies. The only way the agriculture of any long-settled section is radically changed, is by individuals coming in, and beating the old farmers at their own trade, raising better crops, better stock, making better butter and cheese, beef and pork, and of course making more money. A man if he really wants to benefit his neighbors, makes a great mistake if he undertakes to enlighten them, to show or explain his methods, theories, etc. No, he must make a mystery of it, telling them that they cannot do the same; that this and that are his secrets; that they must find out for themselves, etc. They must be absolutely driven off their own ground before they will change. This is actually occurring in all the oldest and longest settled sections, by the incoming of foreigners. The young men have deserted the old farms, and all around thrifty foreigners are getting possession of them. The Irish—quick, smart, practical fellows—get together a little money, buy an old place for a little cash, and give a mortgage. Things may look like distress, but wife, and boys, and girls, all work in the field as well as in-doors, and there is money enough to meet the interest on the mortgage, to keep the family in decent clothes, with a liberal remainder for the church.

The German, when he buys, improves things very fast; everything is neat about his place; his living expenses are not half those of an American family, and yet he lives better. He has more pleasure in his food and in his amusements, and more enjoyment with his family, and, as a rule, does more reading. He begins with a poor little farm, but is ever improving. He goes out to day's-work, while his wife runs the farm. If there is any teaming, plowing, digging of cellars, and that sort of work, he finds time to do it, and so he turns an honest penny wherever he can. He knows that manure goes twice as far, aye, ten times as far in a liquid, as in a solid state, so his garden, and cabbage patch, and tomatoes, and all those half garden crops, are watered with manure water. Thus a little manure goes a great way, and he beats the whole neighborhood with his "truck," which pays him three or four times as much as any crops the native American farmers about him raise.

Gradually they get into doing similar things on a small scale, then on a larger, and finally trucking and small fruits, and special crops of one kind and another, are, so to speak, all the rage. Meanwhile, the German has become a rich man, and if he does not fall into that besetting sin of thrifty foreigners —tavern-keeping, or liquor-selling on a small or large scale—he will become a prominent and influential member of society. Scandinavians, Scotch, and Welsh, effect the communities into which they come, in very similar, but distinct ways. As a rule, I can learn more from Germans and Scotchmen, than any other class of foreign farmers. It is in raising truck-crops that the Germans excel, and it is in live-stock and fodder-crops, that the Scotch and English farmers are superior.

The desire to make money is such an absorbing one among the middle class of Great Britain, that both Scotch and Welsh are apt to be too sharp, or smart for their own good, and this works disadvantageously to them in many cases, for communities soon learn to put themselves on their guard. There seems to be less of this sort of thing among the English, German and Swedish farmers.

After all, no new-comer can influence an American community in the Northern and Middle States like a progressive American, but as I have already intimated, he must not set himself up as an instructor, or he might as well teach mules. He will have a great deal to contend with. In a real old-fogy district, bad roads, poor schools, and either puritanism of a cast-iron stamp, or loose morals prevail, and in many sections, both — society being divided between the "Unco Gude," and those of ultra liberal tendencies, in morals and politics.

Calves—For the Dairy or for the Shambles.

I went through, as they say, a lot of veal-calves the other day, they were tolerably fat, a uniform lot about six to eight weeks old, nearly half heifers. It struck me I would see what they promised to make if they could become cows, and I was surprised at the number of unusually promising ones. There were no Dutch heifers (Holsteins), or half-breeds among them. There were many Shorthorns and Jerseys, a few evidently of Ayrshire blood, and of course a good many—fully one-half—of no obvious breed, (natives). Not long before I had been at one of Kellogg's sales, and I verily believe that I could have picked out from these calves, which were all veal before the next day, those which would have proved better milkers, if not better butter makers, than nine-tenths of those sold at one hundred to five hundred dollars each. The farmer who does not know enough not to kill or sell to the butcher, a calf that will make a twenty-quart cow, needs to take lessons of somebody in the a-b-c of his business. Such a man has probably several cows in his herd, which never give over ten or twelve quarts of milk, and very likely poor milk at that.

How to Recognize a Twenty-Quart Cow

when she is only six weeks old, is hard to tell, and yet I think not so very difficult to do. I do not know that I can tell how. I like a thrifty calf, with a good sized head, which is narrow and long, broad in the muzzle and between the eyes, and narrow between the horns. I do not care if the limbs are "stroug," as they say in Jersey, and perhaps coarse, but they must be straight; and the tail may be even quite coarse at its setting—this indicates constitution. Then, from the withers to the hips there should be a straight upward slope, so marked that if you see the front half of the calf, you will think she is a small one, while if you see only the hind quarters and loin, you will think her very large. In fact, in point of symmetry, the front and hind quarters ought not to match, and the latter should be by far the larger. I prefer long-bodied, open-ribbed, flat-sided, deep-bodied calves. The skin should be loose and flexible all over the body, so that one can grasp a handful almost anywhere. The coat must either be long and silky, a little rough perhaps, but not harsh, or it should be soft and furry. With all this, you should find the teats of good size, well spread, and all the skin about them, before and behind—that which will cover the udder—loose, soft, and elastic, showing, as the Scotch say, "plenty of leather." Such a calf will make a good milker if she is bred at a year to fifteen months old, and after her first calf goes farrow (but not long dry), for a year, or nearly that time, to give her a chance to grow. I say nothing about the escutcheon, because I do not know very much about it, and do not believe in half that is said and written about it. Still I must say I would prefer a good broad, well-winged escutcheon, of the Flanderine type, for if the escutcheon shows anything, it indicates staying power, which is perhaps the greatest merit a cow can have. Many a twelve or fourteen-quart cow will beat a twenty-quart one in the long run, especially in her butter record, the true test of a cow's value.

The amount of butter that a cow will give is indicated by no tell-tale marks that I know of. That must be judged by the pedigree and dam's record, if a calf, or by the scales. The unctuous feel of the hide, its pliability, the abundance of yolk, (the yellow, soapy oil at the roots of the hair inside the ear and in the "butter ball" in the end of the tail) indicate health, and perhaps a tendency to fat secretion, either as butter or fat. But some of the poorest butter yielders I have ever known, showed the most of these qualities, and some of the best had very little to boast of, just enough of oil in the skin to indicate good health, and that the skin was performing all its important functions well.

Color in the skin indicates color in the butter. I have never seen a yellow-skinned cow, that gave pale butter, or a very rich-colored skin in a cow, that did not give yellow or yellowish butter all through the winter. When the yolk, which gives this color in the ears, tail, and skin, begins to show in a calf, it will probably never show less, and what butter the cow gives will be of good color.

The New Dairy Law of New York.

I have heard much discussion among farmers in regard to the working of the New Dairy Law. Some holding it to be impracticable of execution, others heartily approving of it. The Law seems to me to be a fairly complete one, albeit somewhat cumberous, and leaving too much to the interpretation and decision of the Commissioner. It defines clearly what shall be considered as pure and wholesome milk, stating the quantity of solids, including fat, which must be contained in the milk at not less than twelve per cent, while the amount of fat must not be less than three per cent. Besides it declares that milk produced by cows fifteen days before, and five days after calving, or by cows fed upon food in a state of fermentation or putrefaction, "or upon any unhealthy food whatever," to be unwholesome and impure, without reference to its analysis. Ensilage from silos, is made a special exception among fermented foods. Thus it would seem, that the use of brewers' grains, starch feed, glucose feed, and such like articles of feed is pointedly forbidden for the production of milk for sale, or for delivery to creameries or cheese dairies.

Many farmers have felt regret in being obliged to use the articles, because otherwise they could not compete in the production of milk with those who did, even though they knew well that the milk produced was inferior, if not unhealthful. These, and they are our best milk producers, rejoice at the law. Some have cancelled their contracts for grains, on the ground that they are prohibited using them by law. Others will not pit the grains as usual, for fear that they will thus render themselves especially amenable to the law. Others use the grains and pit them as usual. This system of pitting consists in buying brewers' grains in large quantities, when they are very low, and filling pits, like cisterns, with them, well tramped down and covered as nearly air-tight as possible. The grains will keep for months without rotting. They become very sour, and yet are eaten with avidity by cows. The milk produced by these grains, whether sour or fresh, is watery, and lacks richness and good flavor. This sourness is the direct result of fermentation, and increases with age. Access of air, or exposure of the mass to the air, causes rapid decay. The substances pass from fermentation to putrefaction with astonishing rapidity. The brewers' grains come warm from the "mash," and never cool; before the heat of the mash-tub is gone, that of fermentation begins. They are partly cooled off when loaded into railroad cars, but soon heat again. If they are two or three days on the cars—say shipped Friday, arrive Saturday, and cannot be unloaded until Monday, the whole surface to the depth of three to six inches will be gray with mould, black in spots from decay, and the interior as hot as a person can bear his hand in. The sweet smell of fresh grains is rapidly lost, and the sour, unhealthful mess which is left, is utterly unfit for milch cows. The law wisely discriminates against such food, and if carried out will force the drying of these articles, if to be fed, or their use as manure.

REMOVING STUMPS.—There are numerous methods of removing stumps, and there are many cases when it is best to use none of them. It will frequently cost more to rid a field of stumps than the land is worth after the stumps are removed. The use of a chemical to induce decay, or salt-petre to make them burn, is unprofitable, and any method of so-called electricity is mere clap-trap, and money spent in driving nails and fixing up wires is thrown away. Boring the stumps or making a hole beneath them, and blasting them with dynamite, or giant powder, is the quickest method, but one needs to count the cost before engaging in this work.

A Corn-House and Granary.

J. S. GALLOWAY, OHIO.

Figures 1 to 5 represent a granary in use for the past fifteen years, with a few modifications and improvements. Figure 1 is a side view, with roof doors hinged at the lower side and opening downward. The capacity of the two side cribs is materially increased by these doors, and the building is also made more ornamental. The granary is twelve by twenty feet. The building rests upon nine locust posts, each set three feet in the ground, and extending two feet above the surface. The granary is made rat and mouse proof by surrounding the upper end of each post with tin; inverted tin pans are

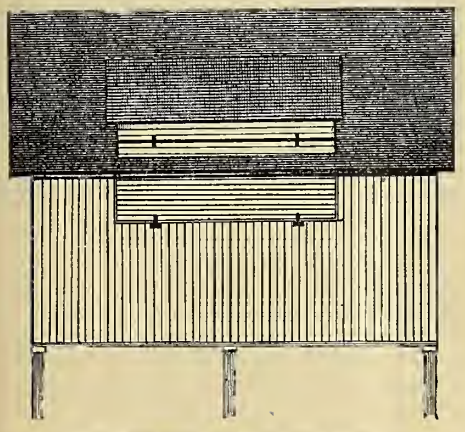


Fig. 1.—SIDE VIEW OF GRANARY.

excellent. The middle posts should be three or four inches higher than the outside ones, so that water or melted snow upon the floor may run out. The floor should be made of matched boards, that there may be no waste from leakage. Make the upper floor and granaries of the same material.

The two large granaries on the first floor, are partly filled from the space by the front door, and boarded up as filled, and then from openings in the floor of the passage-way up stairs. The ascent to the upper floor is by a ladder made of strips firmly nailed to the studding (*l*, fig. 3). The crib, which is closed by dropping in boards as it is filled, being narrowed off for this purpose, as shown by the oblique line *g*.

The granaries on the upper floor (fig. 4), are numbered from 1 to 9. The back wall inclines outward, and extends to the roof, as indicated by the studding shown in figure 5. The upright posts are cut so that the first two feet stand erect, while the upper portion inclines outward, making the passage two feet wide at the floor, and three feet near the top, and giving more room for the arms and shoulders. The upper part of the side cribs extend to

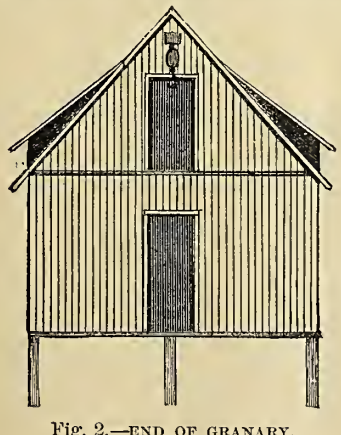


Fig. 2.—END OF GRANARY.

the roof of the granary. An end view of the granary and corn-house is shown in figure 2. A pulley attached to an arm under the angle of the roof, over the front door, aids in raising sacks to, and lowering them from, the upper floor, which is nine feet from the lower one. The estimated cost is as follows:—

9 locust posts, 5 ft long, @ 25c., $2.25; 9 tin pans $2.	$4.25
25 sills, 4x6 in. 20 ft long; 3, 12 ft. long	3.05
16 joists, 10 ft. long, 2x8 in. 215 ft. @ 2c	4.30
4 " 20 " " " for upper floor; 2 plates, 20 ft. by 4x4, 165 ft.	3.30
22 rafters, 2x4 and 2x3, 10 ft. long, 260 ft., $4.20; 2 ties, 4x4, 12 ft. long, 32 ft., 65c.	4.85
200 studding, 2x3 and 3x4, $4; 750 ft. siding, $15	19.00
1,000 ft. matched boards for flooring, granaries, etc.	20.00
300 strips for roofing, 1x3, 11 ft. long	6.00
100 ft. boards for closing up granaries, cribs, etc.	2.00
7,000 shingles @ $4.50, $31.50; nails, hinges, and fastenings, $6.75	38.25
Labor, etc.	45.00
Total	$150.00

The Best Time to Cut Timber.

ANDREW S. FULLER.

If we were to take the opinion of men, practical and otherwise, as our guide in selecting a time for cutting timber we should never reach a conclusion in the matter, for there is not a month in the twelve, that has not been recommended as the very best time for felling trees in order that the wood should remain sound, firm, and durable. There is, no doubt, some foundation for this great variation in the opinion of even those who have had much practical experience in handling and working timber, and it is probably largely due to the fact that in many instances, and for many purposes, no difference is observable in the appearance or quality of timber whether cut in winter or summer.

Much depends upon the treatment timber receives after it is cut, whether placed in a position to season rapidly, or left in the woods, where seasoning will go on slowly; furthermore, climate—the prevalence of insects that attack felled trees—the kinds of timber, and various other conditions and circumstances have much influence on the durability and quality of wood of the same species of trees. It is certainly true that there is a great difference in the amount and condition of the moisture in trees at different seasons of the year, and while as a matter of convenience it will often be of more importance to the one cutting timber, than any

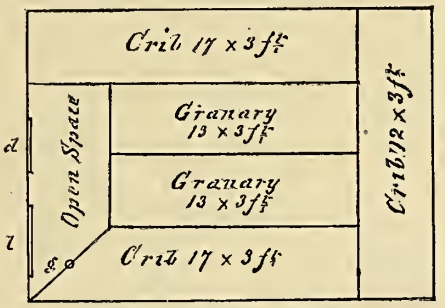


Fig. 3.—THE FIRST FLOOR.

slight variation in quality that may follow, still there is no doubt a choice in time for felling trees for all purposes. In late fall and winter, when trees are in a dormant state, the wood contains less liquids than in spring and summer, and this is without doubt an advantage, for there is not only less to be driven off in seasoning, but less to produce chemical changes which are often more or less injurious to both strength and durability.

From my own experience, and all the facts that I have been able to gather from lumbermen and dealers in timber, I have come to the conclusion that the winter is not only preferable, but the most convenient season for cutting timber, whether to be converted into sawed lumber or be used for posts, rails, railroad ties, or other purposes where toughness and durability are an object. But in case of small timber for posts and stakes from which the bark is to be stripped, then we may delay the cutting until the latter part of the winter, or until the sap commences to liquify, which will facilitate the removal of the bark. All stakes and posts which are to be set in the ground should have the bark removed on that portion in the ground.

If we bear in mind the fact, that it is only the outer portion of the tree—the sap wood, leaves, buds, and inner layers of the bark—which are alive and contain true sap, all other portions being dead, and only serve as a covering, or like the heart wood, help to sustain the tree in its position, we can readily see why it will make no material difference in the lasting properties of timber, whether it is cut in summer or winter, provided the green portion is soon deprived of its moisture, so that insects will not find a lodgment for their eggs, or decay be accelerated by its presence.

For such purposes as hoop poles, the bark must be retained, as it is generally considered essential, and in this case the young trees should be cut at a season when the bark will adhere the most firmly, that is late fall or early winter, although they may be cut in summer, because the hickories usually finish their growth quite early in the season, but the wood is likely to be more brittle if the poles are cut early or when they are in full leaf than later.

Coniferous trees from which it is desirable to strip the bark, should be cut during the growing season

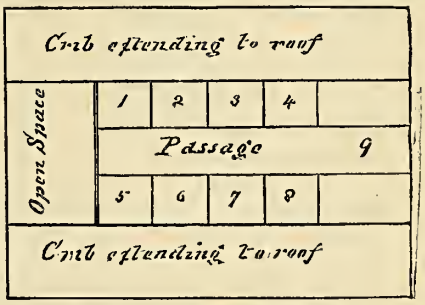


Fig. 4.—THE UPPER FLOOR.

in early summer, and if rapid seasoning is desired without removal of bark, the trees should be merely felled and allowed to remain thus with all their branches attached until the leaves fall off.

We may have other objects in view besides the value of the timber taken, such as a second growth to be produced from the stumps; when this is desired, the trees should be felled at a season most favorable to the roots. If the trees are cut late in the fall or winter, the roots and stumps will throw up sprouts far more readily than if the trees were cut in summer, when growing the most rapidly. In fact, late summer is the proper time to cut trees and shrubs if we desire to kill the roots. It would not be possible to name the exact time best for the purpose, because not only do seasons vary, but the right time in New York State would be too late for Virginia, and those further South, neither is the same time best in all years. I have seen acres of willows killed out completely by a single cutting of their tops, and the next season another lot was cut off during the same days of the same month, the roots of which were but little injured, and threw up sprouts in great abundance the following season. The weather at the time of cutting the willows, no doubt, had some influence in producing the difference in the results noted. In view of the increased attention given to willow-culture in this country, the proper time for cutting becomes of great importance, not only on account of its influence upon the quality of the rods to be used in basket making, but its effect upon the plantation. In England, where willows are grown to an astonishing extent, it has been found that to delay the cutting until spring, weakens the next crop.

In ancient times, and, in fact, in modern, many persons have believed the moon has some mysterious influence upon the growth of animals and plants inhabiting this earth; such insist that trees

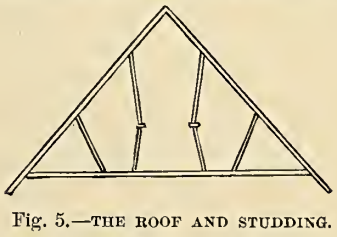


Fig. 5.—THE ROOF AND STUDDING.

should always be cut during certain phases of the "pale orb of night," but for some reason they fail to agree in this matter, some insisting that it is best to fell timber on the wane, others the new of the moon, etc., but such superstitions have long since become obsolete among men who know anything of natural history in any of its various branches.

Walks and Talks on the Farm.

New Series.—No. 2.

JOSEPH HARRIS, M. S.

"Did you see that article in the papers about eighty-cent wheat?" asked the Deacon, as he sat in the shade of a maple tree in the corner of his clover field. "It looks as though this country was going to see hard times. We can make nothing in growing wheat at present prices, and I do not see how the farmers at the West can either."—"Well, Deacon," I said, "you and I have lived long enough to know that dark forebodings of evil are usually exaggerated. I have seen good wheat sold for 'three York shillings' a bushel, and I believe you once sold some for twenty-five cents a bushel. Look round, Deacon, and see what has been done since you first bought this farm. Where we now sit, and for miles around, nothing but forest. The first time I came from Rochester, in several places along the road, so-called, I had to crawl on the fence to keep out of the mud. Now we have a really good gravel road. We have churches, school houses, substantial homes, fine orchards, good gardens, handsome lawns, with bright, intelligent, well-dressed children playing croquet, etc. Do not interrupt me, I know what you would say. These changes, whatever evils may come with them, are for the better. Forgetting the things that are behind, let us press forward. Courage, hope, self-denial and work, have hitherto sustained us, and depend upon it, the world will not come to an end till the end comes—even though we have 'eighty-cent wheat.' But we shall not have eighty-cent wheat—at any rate, not for long. It cannot be. Writers on this subject overlook one fact. They say a man has but one stomach, and that not a large one. It is soon filled, and no matter how cheap wheat may be, he can not eat more than he can. Improved implements, they say, and cheap transportation, and the clearing up of new lands, and the use of fertilizers on the old farm, have so increased the production of wheat, that there is an actual surplus which the world cannot use. There are not stomachs enough. How short-sighted this is. It is true that a man cannot eat more than a certain amount of bread. It is also true that he can do more work in a given time, than at any former period. People are better educated. They have the best of tools, implements, and machinery."

"Yes," said the Deacon, "and on the cheap, new lands of the West, they can produce wheat and send it here at a price that will ruin us."

"Wait a moment, Deacon," I replied, "you think I am wandering from the subject. Perhaps I am, perhaps not. What I am trying to get at is this: The world, as a world, is better educated, more skillful, and possesses wonderful appliances of all kinds, and ought to be, and is able to do a given amount of work in half the time, or quarter the time than it could fifty or twenty-five years ago, and consequently the world is twice as rich, or four times as rich as it was. Now, what will the world do with its surplus wealth? It cannot eat more wheat, you say, it can wear better clothes, and live in better houses, and have more comforts and luxuries, but it cannot eat more bread. And consequently the farmer, with his improved facilities, can very easily overstock the market, and leave himself no profit, and no adequate compensation for his skill and labor.

"There is no truth in this idea. An intelligent man does not want to live on bread alone. We think more, work harder, and want better, more nutritious, and more easily digested food. We want more beef, mutton, lamb, veal, pork, butter, cheese and milk. We are searching the world over for these products of the farm. There is no article of commerce, trade, or manufacture, that is more needed, or is in greater demand than good meat. And the more intelligent, skillful, industrious and wealthy the world becomes, the more meat will it want, I was going to say, need, and I believe it, but will not insist on this point. It is certain, however, that the demand for meat is steadily increasing, and the price advancing. It is a costly article. Ten pounds of gluten in bread, or legumin in peas and beans, or vegetable albumen in grass, will rarely give us over one pound of fibrine or albumen in beef or mutton. Animals are expensive machines which have to be kept running night and day, and it will require all our skill, experience and science in breeding and feeding, to produce the meat which the world will eat. A densely settled country like China, is necessarily filled with a vegetable-eating, and not a meat-eating people. If India, Russia, Australia, California, and our new lands in the Northwest, furnish the world with cheap bread, the world will have more money to expend in meat, and will be able and willing to pay good prices for it.

"A year ago, the Queen of England, owing to the scarcity and high price of mutton, thought she would do all she could to stop the killing of sheep before they had got their full growth, and ordered that no lamb be eaten in her household. Poor Queen, her intentions were good; but it is not the scarcity of sheep that is the trouble, but the scarcity and cost of food that is required to raise and fatten them. Then why talk about over-production? If grass, hay, corn, oats, barley and wheat are too cheap, sooner or later they will be converted into beef, and mutton, and pork, and the good Queen can have her roast leg of lamb, and mint sauce, without hypothecating the crown jewels.

"Our old friend, the Doctor, once remarked: 'if you want to make money, aim to produce the luxuries, rather than the necessities of life.' The fact is, the so-called luxuries soon become necessaries. It is certainly true of meat, eggs, milk and butter. And this reminds me, Deacon," I said, "that instead of cabbages, you had better grow cauliflowers, and still better, celery. Celery is now somewhat of a luxury. It will soon be considered as necessary as any other vegetable. And we shall soon have thousands of acres of our mucky, swamp lands, occupied with the crop, and it will be boxed up and sent all over the world.

"My own plan of growing it involves very little labor. It is planted on land so low and so wet, early in the season, that it cannot be plowed before the middle of June. It is light sand and muck, not naturally rich, at any rate, it produces only a moderate crop of grass or hay. We plow the land as soon as it will work properly, and harrow and roll. Then with a common corn-marker, we mark off rows five feet apart, and scatter along these rows a mixture of half superphosphate, and half nitrate of soda, say a good handful to each yard or two paces of the row. We do not sow it broadcast, but drop it along the row. We then take a horse-hoe or cultivator, remove all but three teeth, and set the cultivator as narrow as possible—say at fifteen to eighteen inches wide, and let the horse walk along the mark, and set the cultivator to run as deep as we can get it to work properly. We sometimes go twice in the row. The object is to make the soil as loose, and deep, and mellow as possible, and to mix the superphosphate and nitrate with the soil. Set out the plants in the rows eight or nine inches apart. You will be astonished at the good effect of the cultivator. It makes the soil so loose that the plants can be set out with the greatest ease. Of course, it would be just as well to cultivate the whole of the land, but this plan saves time, and the land between the rows will be thoroughly cultivated afterwards, in order to keep down the weeds.

"If the land is rich enough, it is not necessary to use the superphosphate and nitrate; but on my farm, I find great advantage from its use on celery, strawberries and asparagus."

"How late will it do set out the celery plants?" asked the Deacon. "In this section they can be set out as late as the first week in August, and later as you go South."

"Are you going to get a binder?"—"No, not as long as I can hire two. There are enterprising young men in every neighborhood, or ought to be, who will keep one or two or three binders, and go round cutting wheat by the acre, just as they keep steam threshing machines, to thresh grain by the bushel. It is cheaper to hire than to buy.

"I hired two binders last year, and hope to do the same thing this year. All we had to do was to stick up the sheaves in stooks. Harvest time is now about our most leisure season. I thresh in the field where the wheat grew, with a steam thresher. Make the straw-stack in the field, and draw the straw home in the winter."

"But suppose it rains?"—"We stop. If we were drawing to the barn we should have to stop also. And we can draw faster to a machine in the field, than we can to the barn—at any rate we can unload faster, because the man on the load has merely to throw the sheaves on to the platform of the machine, whereas in the barn, or at a stack, towards the top, he has to lift them up above his head.

"Our mowing machines, reapers and binders, and steam threshers, are all that we can desire, with one exception; the straw carrier is not long enough. The manufacturer who will double the length of the longest carrier we now have, will receive the hearty thanks of every man who has ever had to take the straw away from one on the top of a stack. It is only a question of a few pounds more coal. In this section, straw is valuable as fodder for sheep and horses, and we all want good, high stacks, well topped off to shed the rain."

"My sheep all through the winter months get no hay; nothing but straw and malt-sprouts. After lambing, we give the ewes clover hay, and a few mangles, malt-sprouts or roots. I can winter twice as many sheep as I can summer, and such is the case on most of the farms in the wheat-growing sections. You will say that this means too much grain, and too little grass and clover.

"Meal and water is good for man and beast, easily made, and it is surprising that every farmer does not use it. Oat-meal is better, but for horses, cows and sheep, we use corn-meal. All we do is to stir in some meal in the water in the trough where the horses drink. If it gets sour, empty the trough and let the pigs have it. At first the horses do not like it, and it is better to give them a little in a pail, until they get used to it, when they will drink it as readily as pure water. When the horses come home tired and thirsty, at noon or night, nothing can be better for them. Or at any time when they have to work longer than usual, a drink of meal and water puts new life and vigor into them. By stirring up the meal from the bottom just before the horse drinks, or even while he is drinking, he will get more meal."

For some time the Deacon had not been listening. This is an old story to him.—"There he is, the villian," he exclaimed, and started for the barn. There has been a crow in the neighborhood, probably an escaped tame one, that carries off eggs and chickens. It makes the Deacon very mad. While I was talking, he caught sight of him, and ran for the gun. I have not heard the report, but sooner or later, I have no doubt the Deacon will get him.

Do Toads do Harm?

Strange as it may appear, all do not recognize a friend in the toad, for we are asked, "if they do any harm in the garden?" Under the writer's front stoop there is a shelter for several toads, and it is great amusement to watch them as they come out towards night for their evening meal. An insect is seen, and then he is not. One can not, at first sight, follow the rapid motion of the tongue of the toad, as it whips up the insect with the rapidity of a wink. The ancient belief that the toad's head contained a "jewel," must have had reference to that tongue of his, which is indeed "a jewel" in the way of an insect destroyer. Harris, the entomologist, states that he fed a toad with some black caterpillars, about three-fourths of an inch long. When he had fed a hundred he was tired, but the toad was not, but was ready for more. Toads are welcomed in our garden, but snakes, which sometimes come in from the woods near by, are not, but only because they prey upon toads. By all means encourage the toads, and discourage the snakes.

The Rival Beef Breeds.

F. D. COBURN, KANSAS.

Considerable changes have occurred within a quite recent period in the popular estimates and selling values of cattle of the various beef breeds, most common in the great grazing territory between the Allegheny and Rocky Mountains. Perhaps the most remarkable of these is the introduction, in comparatively large numbers, of the polled Aberdeen, Angus, and Galloway cattle from Scotland, and their wide dissemination at high prices, mainly to ranchmen on the Western prairies; prices which at the spring sales of the present year have been considerably cut down. The latter fact is partly accounted for by a determination of many cattle raisers to no longer pay two or three times as much for animals of breeders that here, under existing circumstances, are largely experimental, as for others of a breed or breeds of thoroughly demonstrated value under like conditions. This determination is also strengthened and the prices lessened by the pedigree of many of the newly-introduced animals being presented in such shape as to give small assurance of their being better than grades, while some of the individual animals have little more to recommend them than their being black, hornless, and imported. In spite of high prices heretofore, or apparent low prices now, there is no doubt that the best of these black cattle have great merit, upon which, like their competitors, they will be judged, bought and sold.

The Herefords were almost unknown in America a decade ago, when the bare suggestion of their ever being formidable competitors in the beef classes was regarded by ninety-nine persons in a hundred as most ridiculous. They have shown themselves the peers of any, in the stall or on the butcher's block. In price they are held more firmly by their owners than cattle of any other breeds. They occupy this position not from merits assumed, but from desirable qualities thoroughly demonstrated under conditions adverse as well as favorable, and their popularity founded on the basis of merit seems permanently assured.

Shorthorns, the best known and most fully tested of all improved cattle in America, have, as a breed, for years suffered harm from the distorted views entertained by many persons raising them, who placed pedigree and color above individual excellence, also from the selling to confiding purchasers as representatives of the breed, thousands of the more unworthy specimens to perpetuate their inferiority, that should have been sent to the shambles. There are weeds in every breed, and if used to propagate from, the standard is sure to be lowered sooner or later. Notwithstanding the mistakes of which they have been the victims, the Shorthorn interest is probably now in a more healthy condition than at any time in the past twenty years. Much of this favorable reaction is due to the rivalry and rapid advancement of other breeds towards occupying the fields before supposed to be all its own. The tendency in rearing each of these breeds is constantly toward a higher beef standard, to the economical and profitable attainment of which other considerations, such as color, pedigree, and remote crosses will be rated but secondary. Let us agree upon essentials.

The Cattle for the South.

Some recent experience with Jersey and Devon cattle, seems to indicate that the latter are best for the tide-water sections of the South. Two years ago a thoroughbred Jersey bull was purchased, and put to service on several of the best obtainable native or graded cows. Six fine calves was the result; but these did not make much headway in growth. Before another season, the bull sickened and died, despite all that could be done for him, though he had a good pasture, and was not allowed to run out upon the commons. Since then, four of the calves have also died, from no apparent cause, unless it be on account of the peculiar character of our summer season. The two remaining calves, though seemingly healthy, are small and delicate. They may survive, but will never attain the sprightliness and usual vigor of the Jerseys, as I have seen them in mountainous districts. The conclusion is that the Jersey is too delicate for this section. It may do in the more elevated regions, where the summers are not so moist and sweltering as they are nearer the ocean. A first class native, or a grade Shorthorn, would be a safer investment.

This preference for the Shorthorn is based on actual, and somewhat extended tests. Several years ago, when I started farming, I found the grade Shorthorn a very good milker, and excellent for beef and labor. The oxen are strong, heavy, and enduring, and the breed, having had long trial here, appears to be entirely hardy, and fully acclimated. On good pasturage, the Devon develops into a superior animal for beef and for labor. It stands as much neglect, even ill-usage, without material deterioration, as any other breed of cattle. And as there are already here many good grade Devons, any one who may desire to establish a nearly pure blood herd, would only have to procure a full blooded male, and purchase the native grades, which would cost him much less. The partiality that many feel for the Jersey, might lead some in this region (Surrey Co., Va.) to invest more in this breed than would be justifiable under the circumstances. B. W. J.

Sloping Shoulders in Draft Horses.

The student of horse anatomy from the usual text-books and horse-books, will naturally conclude that an upright arm or humerus (the bone designated as *b*, in fig. 1), and an oblique shoulder are incompatible. That this is not so, is clearly shown in the accompanying diagrams. In figure 1 we have an upright humerus, in figure 2 a very oblique one, and yet the slope of the shoulder blades (*a*, *a*, in each diagram), is exactly the same. It has long been held that while a sloping shoulder is very important for a hunter or a trotter, an upright shoulder does very well for a draft-horse. The sloping shoulder is supposed also to promote high action, which is desirable in carriage horses. From recent observations of Mr. James Howard, communicated

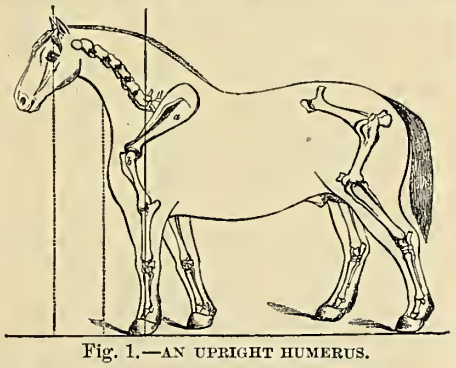


Fig. 1.—AN UPRIGHT HUMERUS.

in "Notes on Cart-horses," to the Royal Agricultural Society, it would seem that we have all been poor observers, and pupils of very poor masters, not to have seen how much more the power, style, action and usefulness of any horse, and especially of a draft-horse, depended upon the position of the leg, rather than upon the slope of the shoulder-blade. In figure 1 the weight of the horse is sustained in front, upon an almost perpendicular column of bone, the humerus, at the shoulder joint, being but very little out of the perpendicular, just enough to give the needed elasticity to the limb. The leg is well forward, which position of course causes the weight of the body to be much more evenly distributed between the fore and hind legs, giving greater stability, and greater propelling power. While, were high action desirable in a draft-horse, and they usually possess it, this position of the humerus is far more favorable to it than the position shown in figure 2. In that we see the fore legs inordinately loaded with the weight of the body, and the bones so connected, especially at the shoulder and elbow joints, that a long stretch of the leg as in fast walking, or high knee action, can not be taken with any ease, if indeed by any possibility; the whole cause being the obliqueness of the humerus or true arm. We have no doubt as to the great desirability of looking well to this point in draft-horses, and wonder that it has never been forcibly presented to us before. So far as we can see, it is of nearly equal advantage to other horses. Their legs are, however, neither adapted to,

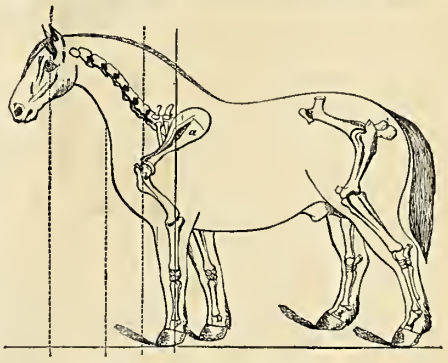


Fig. 2.—AN OBLIQUE HUMERUS.

nor called upon to sustain equal proportionate weight, except, perhaps, in the case of hunters, whose legs in leaping must sustain enormous pressure. It is, moreover, the experience of Mr. Howard, that for both draft and saddle horses, the upright humerus is of greater importance than the sloping shoulder blade. It is nevertheless true, that in draft-horses with very sloping shoulders, high withers are most important. Otherwise the collar will not be held well in position, but will bear too heavily against the chest, shoulder points, and perhaps against the lower part of the neck, so as to obstruct the breathing and inconvenience the horse.

Valuable Points in Horse Breeding.

Mr. James Howard, a famous English breeder of horses, has arrived at some important conclusions in the art of breeding. He believes that the external structure, configuration and outward characteristics, including peculiarities of locomotion, are mainly derived from the sire, while the structure of the various internal organs, the temper, habits, and constitution, come from the dam. The purer the blood of the parent, the more certainty there is of its qualities being transmitted to the offspring. This is particularly true, if the greater purity of race or breed is on the side of the sire. A pure-blooded male that has descended from a stock of uniform color, fixes that same color upon his colt. A sire may influence progeny subsequent to that of which he is a parent; that is, his influence is stamped upon the dam. The transmission of diseases of the vital organs, is more certain from the female, while disorders of the external parts, joints, etc., most surely come from the side of the sire. We know of many exceptions—if they are exceptions—to the above points, and give them more as food for thought for horse-breeders and others, than as rules of action.

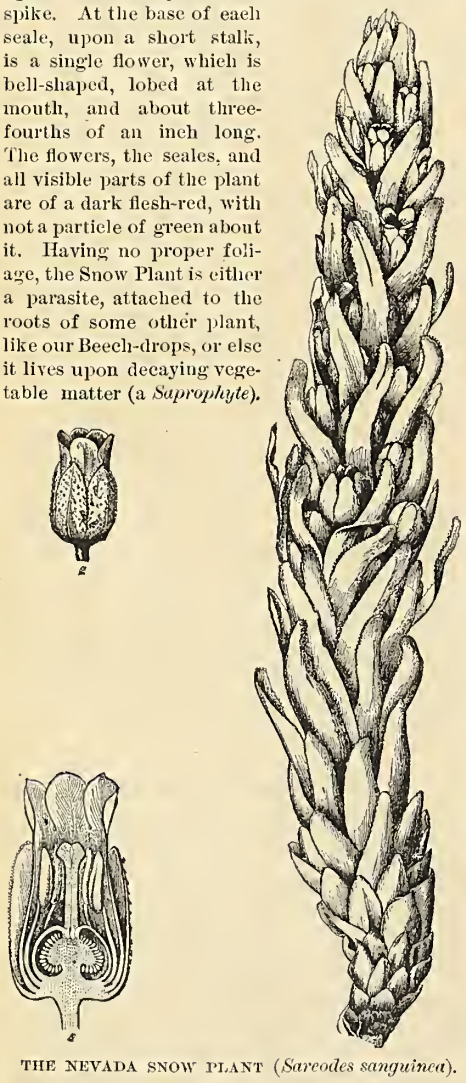
Hens Picking Feathers.

The pernicious habit of picking feathers occurs generally among hens and chickens that are confined to small yards, or henneries, without any yard. Villagers are often obliged to raise chickens, if they have them, in very narrow quarters. It is much easier to supply grain and vegetable food, than to furnish the animal food which is essential to the production of eggs. If they cannot get it otherwise, they will pick at the feathers of their neighbors. The pin feathers are a very delicious morsel, and chickens are most likely to be plucked at the moulting time. The old hens will draw blood, and when this is tasted the flesh will follow, and we have occasionally known half-grown chickens to be killed and eaten by the hens with which they were confined. The remedy is animal food in some form, and this should be given without delay, as soon as there is any indication of the

vicious habit. If the fowls are turned out where they can get insects, this will meet the want. Skimmed or sour milk, healthy beef-liver, butcher's offal, fish offal, and chandler's greaves, are cheap forms of animal food, generally within reach.

The Snow Plant of Sierra Nevada.

When the overland route to California was by stage coaches, travellers often gave glowing accounts of the natural wonders to be seen, especially in the Sierras. Among these was the Snow Plant, which appeared as if by magic, suddenly thrusting its blood-red spike out of a snow bank. Aside from a little enthusiasm, these travellers' descriptions were not far wrong. Mrs. B. E. Hunter, of Reno, Nevada, has given us an opportunity of examining the plant in the living state, by sending one "just beginning to grow," the development of which we were able to observe. Botanical works state that the plant flowers as "soon as the snow melts away." Mrs. Hunter in suggestions as to the treatment of the specimen after it should arrive, says: "Place it in water as deep or deeper than it was in the ground....If you put ice in the water it will make it thrive better, as it grows up out of a snow bank, and needs to be kept cold." This confirms the travellers' description as to its occurrence in the snow. The engraving gives the whole plant reduced in size; the specimen sent, when full-grown, was a foot in hight. It will be observed there are no real leaves, but instead are numerous fleshy scales, which are broad upon the portion of stem below ground, and long and narrow upon the fleshy flower-spike. At the base of each scale, upon a short stalk, is a single flower, which is bell-shaped, lobed at the mouth, and about three-fourths of an inch long. The flowers, the scales, and all visible parts of the plant are of a dark flesh-red, with not a particle of green about it. Having no proper foliage, the Snow Plant is either a parasite, attached to the roots of some other plant, like our Beech-drops, or else it lives upon decaying vegetable matter (a *Saprophyte*).



THE NEVADA SNOW PLANT (*Sarcodes sanguinea*).

The fact that it will flourish at the low temperature of melting ice is striking, but we have an humble plant, our little Chickweed, that does the same. The Snow Plant is found in the Sierra Nevada, at the altitude of four thousand to nine thousand feet, in the forests of Spruce, and the groves of *Sequoia*—the "Big-tree" of California. It was first discovered by Fremont, and described by Dr. Torrey in the "Smithsonian Contributions," who gave it the name *Sarcodes* (resembling flesh), *sanguinea* (bloody). The engraving gives at the left a separate entire flower of real size, and below one cut through longitudinally, somewhat magnified.

Notes From the Pines.

A short time ago, a young man from California called on me, who is known as a horticultural writer. He wished to tell me how much help and encouragement he found in the Notes in his early efforts in horticulture on the Pacific side. I shall continue them from time to time, in the hope that there are other young men who may find them helpful and encouraging. It is, after all, the little matters, those that writers upon horticulture do not regard as of sufficient importance to give a place in their books, the minor matters of practice, that are suggested in one's daily work, that are really of service to the novice.

PLANTING THICKLY AT FIRST.

I was looking over, recently, a work on gardening, which advised, in laying out a new place or in remodelling an old one, to plant shrubs and trees thickly for immediate effect, and as they become too much crowded by increasing in size, to thin them out. Is this good advice? Perhaps it is for some. But when I remodelled this place, I had the same idea and planted thickly, with the intention of thinning, and that good intention has not been put into practice. When a tree or shrub has grown up under one's eyes for ten years or more, if he can put the axe to the root, he has more courage than I. I admit that it would be better for those remaining, to remove it, but then this one that has grown into my affections all these years, will be there no more. I have had a few trees removed while I was away from home, and the vacant places daily remind me of the loss. From my own experience I should not advise thick planting, for when the time for the thinning arrives, it will not be done. A tree-planter should be able to imagine the appearance of his work when the trees have attained their full size. Mr. Elias A. Long illustrates the danger of too close planting by means of a diagram which I borrow. The young trees are shown at the time of planting, and do not appear to be at all crowded. The curved dotted lines show the sizes of the trees at the end of a few years.

THE JAPANESE SNOWBALL.

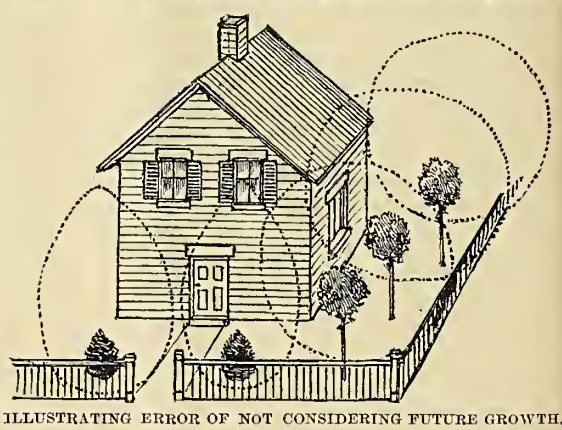
In my rather large collection of shrubs there is none finer, or that has afforded more real pleasure than the Japanese Snowball. Every one knows the old-fashioned Snowball, to be found in all old gardens. This Japanese species (*Viburnum plicatum*), is vastly superior in every respect. My specimen is now about eight feet high, and when loaded with its snow-white clusters in early June, was a grand sight. The habit of the bush, its rich, very dark-green leaves and snow-white clusters all place it in the very front rank of ornamental shrubs. Being somewhat difficult to propagate, it is held at a rather high price in the nurseries, but it is worth all it costs to lovers of fine shrubs.

COAL ASHES FOR WALKS.

I at one time regretted that we could only get good gravel here by bringing it a long distance by rail and at a great expense. Since I have had more experience in the use of coal-ashes for walks, I prefer them to gravel at the same price. When laid down, some soil should be sprinkled upon the surface of the ashes, and they will soon pack and form a path with a permanent, smooth surface, that is delightful to walk upon. We placed all our own ashes upon the side-walk of the road leading to the railroad station and post-office. A factory a mile or more distant was glad to have us cart away all the ashes we would take, and as a result we have a walk that is dry, firm, and at the same time elastic, making a grand neighborhood improvement.

THE KENTUCKY COFFEE TREE.

Looking out from my window upon a fine specimen of the Kentucky Coffee Tree, I thought what a pity it is, that with this and so many other fine native trees, to give variety, people should go on planting just a few kinds, each one selecting the same, so that one place is just like another, so far as the trees can make it so. The Neighborhood Improvement Societies have done much good work. If they could contrive to teach people the merits of our neglected native trees, they would add to their usefulness. The tree in question may be described as a glorified Black Walnut. The leaves are two or three feet long, are much more divided than in the Walnut (twice pinnate, as the botanists say); the foliage is much more graceful,



ILLUSTRATING ERROR OF NOT CONSIDERING FUTURE GROWTH.

and as it plays in the breeze has a lightness that is most pleasing. The flowers are not conspicuous, and the staminate and pistillate are on different trees. The fruit is a large curved pod, which contains several large flattened seeds. The early settlers at the West used these seeds as a substitute for coffee, which gave the tree its common name. When the abundant foliage has fallen, the tree has a peculiar appearance on account of the large size of its naked branches, and the absence of small spray. From this characteristic its botanical name is derived, *Gymnocladus*, meaning naked branch. Being found from Canada, southward, the tree is generally hardy. The reddish wood is fine-grained and durable, which with its rapid growth make the tree valuable in timber plantations. It is propagated from the seed, and grows readily from cuttings of the roots. The *American Agriculturist* has done much to make our native trees better known, and I suppose that the only way is to keep hammering away at them.

THE PINES.

Save the Potatoes.

JOSEPH HARRIS.

The method of applying Paris Green or London Purple to potato vines infested with the Colorado beetles or "potato bugs," is of comparatively little consequence. The important point is to apply it early enough, and often enough, and late enough. Half-way measures do not answer. It is folly to talk about hand-picking. It is fool-hardy to sit still and hope that the bugs will leave of their own accord, or do little damage.

If left alone, or not killed entirely, they will almost certainly ruin your crop. And mark you, the injury done, whether it is to the extent of one-eighth, one-quarter, or one-half the crop, is so much deducted from your profits. The interest on the land, the cost of manures, the labor of plowing, harrowing, rolling, marking, planting seed, cultivating, hoeing, and to a great extent digging the crop, is the same for a good yield as a bad one.

Potatoes will probably be potatoes next spring. It is seldom they are so cheap as they were this spring two years in succession. But whether they are cheap or dear, provided we grow them at all, it is very unwise to let the bugs eat up the vines and our profits at the same time, all for the want of a little energy, and the prompt and repeated application of a little Paris Green or London Purple.

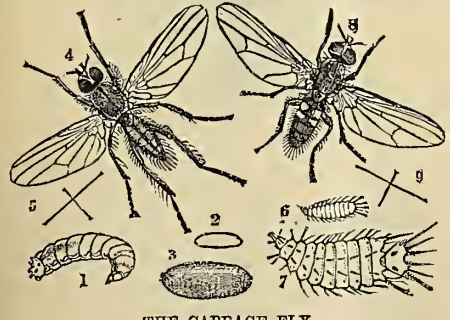
Two years ago, we knew a man who had two fields

of potatoes. One he "greened" in good season, and the other he thought would get along without it. About three weeks afterwards he found that the potatoes where no Paris Green was used were covered with the bugs. He then applied the poison, and at the same time repeated the application on the first field. On the first field he had two hundred bushels per acre, on the other not fifty bushels, and part were so poor that he did not dig them at all. He lost not less than five hundred dollars worth of potatoes for the want of three or four dollars worth of labor and Paris Green.

The Cabbage Fly and its Relatives.

In England, one of the greatest obstacles the cabbage-grower has to contend with is the maggot of the Cabbage Fly, which sometimes destroys whole fields of cabbages. As the insect has already appeared in this country, and has done some damage, our readers are interested in knowing something about it in advance, that they may be prepared to meet it, when it makes its appearance in their crops. The insect is own brother to the destructive Onion Fly, the Beet Fly, and the Seed-corn Maggot, all of which belong to the genus *Anthomyia*, the Cabbage Fly being *A. brassicæ*. The maggots, 1 in the engraving, eat numerous holes in the stems and roots of the cabbages, on account of which, especially in wet weather, decay sets in, and the plant perishes. The maggot, when full grown, is about a third of an inch long, is whitish, leg-less, tapering to the head, and blunt at the tail, which has short teeth-like points at the margin. When its growth is complete, the maggot enters the earth, and changes to a reddish-brown pupa, with a few black spots at the head, and short teeth at the tail, seen in the engraving at 2 and 3, natural size and magnified. In two or three weeks the flies come out, and lay eggs for another crop, and successive generations are produced until November, after which time the pupæ remain in the ground unhatched until spring. Cabbages, when attacked by the maggot, show by a drooping of their leaves, and by a change in color, that something is wrong. The application of clear lime-water, made as soon as the presence of the maggot is detected, has been found useful. As the maggot enters the ground close to the plant, and goes down but a short distance, it is recommended, to draw the earth from around the root, with the pupæ in it, and destroy them by heat or deep burial. But such measures as these can only be practicable in the garden. On a large scale, relief can only be had by a change of crop, occupying the land with beans, grain, or some other crop, upon which the parent fly will not deposit her eggs.

Another species is known as the Root-eating Fly, *A. radicum*, the maggots of which are found in cabbages and turnips in England; these very closely resemble the maggots of the preceding, but are of a more ochre-like color. The perfect fly is shown at 4, magnified, the lines giving the real size; its colors are black and gray. This insect has not yet been noticed in this country, but curiously enough a maggot, which is very destructive to the eggs of the Locust, that plague of the far



THE CABBAGE FLY.

West, was found to be the larva of a fly, so closely resembling this European Root-eating Fly, that Prof. Riley has described it as a variety of this species.

Though our potato crop has already a sufficient number of enemies, there is a possibility that one more may be introduced. In England the maggot of another species of *Anthomyia*, *A. tuberosa*, feeds upon the potato. The maggot is given at 6 and 7, of its real size and magnified, and the fly at 8 and 9.

Floral Chenille—Spraguea.

Among the interesting plants made known by the early explorers of the Sierra Nevada, is a mem-



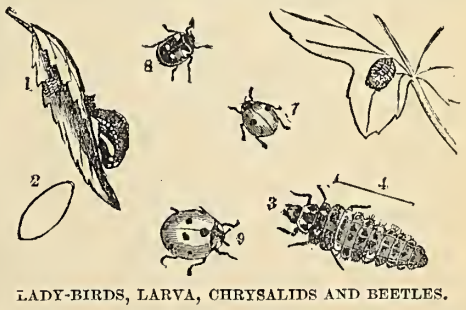
THE FLORAL CHENILLE (*Spraguea umbellata*).

ber of the Purslane or Portulaca family. This proved to be very interesting to botanists, and Dr. Torrey, in view of the great services Mr. Isaac Sprague had rendered to botany, by his wonderfully accurate drawings, named the plant *Spraguea*. After some years the seeds of this plant were sent to Europe, and it went into cultivation. The flowers themselves are very small, and have no beauty, but their large and persistent sepals and bracts, crowded together, make a curious inflorescence. These flower clusters, of a peculiar warm gray color, were at once adopted by the French florists as a most useful material with which to finish off the lower portion of a bouquet. From the resemblance of the flower spikes to that kind of trimming, called Chenille, the plant was named by the French florists "Chenille Florale," and became for a time quite the flower fashion in Paris. The plant is a biennial. Its flower stalks, produced the second year, are six inches or more high, surmounted by the peculiar, recurved, densely flowered clusters. The seeds are offered by our leading seedsmen. The engraving represents the plant in bloom, showing its peculiar habit. Our only trial with the plant was in an unusually dry season, and the next year it failed to flower satisfactorily.

Lady-birds and their Larvæ.

It is fortunate that the Lady-birds are generally so prettily colored, and so handsomely spotted. Otherwise they might fare badly at the hands of those who call every insect a bug, and kill it without stopping to ask what it does for a living. Even those who spare them do not generally know that the Lady-birds have a claim to exemption, beyond their good looks; it is a case where "handsome does" goes with "handsome is." It should be generally known, and children ought to be taught that these are among our most useful insects, and rid us of vast numbers of other insects that do us damage. Every one knows the Lady-birds in their perfect state, but they do the most of their beneficial labor, so to speak, in their working clothes, or in the larval state. In this, or the caterpillar condition, they are not very attractive, though highly useful, and it is important that every one should be able to know them in every form they assume.

In the engraving figure 3 represents the general appearance of the larvæ. They are usually lead-colored, and often marked with yellow, red, and other colors. They move about in such a busy manner that one would hardly suppose them to be caterpillars. Like other caterpillars they are great feeders, but unlike most, instead of feeding directly upon our plants, they do it at second hand and eat the insects that eat our plants, and render great service in devouring myriads of plant lice and other small insects. They actually attack the disgusting fat larva of the Potato-bug of Colorado, which few other creatures, whether bird or beast, can stomach. After an active useful life of about three weeks, they take a well earned rest; hanging themselves up by the tail, they become shining black chrysalids as shown in figure 1. In this condition it appears quite unlike the lively larva it was before, or the bright-colored spotted beetle that it will be, and it is especially important that it should be recognized in this state, as it is exposed to great danger from ignorance of its real character. We knew of a person who ought to have known better who went out to pick bugs from the potatoes in his garden. He came back with a nice collection



LADY-BIRDS, LARVA, CHRYSALIDS AND BEETLES.

of Lady-birds in the chrysalis state, not knowing his friends from his enemies. This is one of the cases in which even a slight knowledge of insects has a cash value. These engravings will enable even the children to know the useful Lady-birds under all their disguises and treat them as friends.

Variation in the Leaves of Trees.

The number of our ornamental trees is largely increased by the fact that individual trees sometimes vary from the usual or normal form of the species. This variation occurs in the branches, which may be pendulous, and produce "weeping trees," or erect and fan-like. The leaves vary greatly, both in their form and colors, and the flowers and fruit may strikingly depart from those proper to the species. The Weeping Beech, the Fern-leaved and Purple Beeches, are three striking



Fig. 1.—ORDINARY LEAF OF SILVER MAPLE.



Fig. 2.—CRISPED-LEAVED MAPLE.

and valuable ornamental trees, produced by as many different kinds of variation, affecting the branches, and the form and color of the leaves. Some variations are produced from the seed, the young seedling trees showing their peculiarities from the start. Variations of this kind are to some extent continued by seed. When the seeds of the Purple Beech are sown, the nurserymen expect that a large percentage of the seedlings will have purple foliage. Variations are produced in another manner. A branch appears upon a tree of the normal kind, having a different habit of growth, or bearing leaves, flowers, etc., quite unlike those upon the rest of the tree. The term "sport" was long ago applied to variations occurring in this manner; Darwin called them "bud variations." Such forms are propagated by cuttings, layering, grafting, etc. They often differ from the usual form of the tree in the readiness with which they may be propagated, and sometimes as to their hardiness. The variations in the form of the leaves often give to the tree a very different expression from that peculiar to the species, and the foliage, instead of being dense and massive, is light and feathery. Deciduous trees with simple leaves, may be divided into two groups; one with feather-veined, and the other with radiate-veined leaves. In the first, like the beech, the apple and many others, a strong mid-rib runs lengthwise of the leaf, from its base to its tip, and smaller ribs or veins run from the mid-rib to the margin of the leaf, somewhat like the plume upon a feather. In the other group, the radiate-veined, three, five or more equally strong ribs, start from the base of the leaf, and diverge towards the circumference, as in the maples, the buttonwood tree, etc. Such leaves are also called palmately-veined. We may look upon a leaf as a frame-work of ribs or veins; these are woody and firm, and give strength to the leaf. The spaces between these are filled with a soft, green, pulpy material, in which the work of the leaf is carried on. In leaves of the normal form, there is a great difference as to the completeness with which the margin is filled out. Sometimes there is no break in the margin, not even the slight notches so common; such leaves are called entire. The margins of other leaves are variously indented, and this varies from fine notches, to depressions half way or more to the mid-rib, producing that great variety in outline, so noticeable in leaves. These forms of leaves are characteristic of species. Leaves ordinarily entire, or with slight indentations on the margin, may vary by having unusually deep divisions; such trees are popularly known as cut-leaved. The feather-veined leaves have the divisions run from the margin towards the mid-rib, and when these are deep, the trees are often called "fern-leaved." The unusual indentation or cutting of the margin of radiately-veined leaves, produces a very different set of forms. The native Silver Maple, or White Maple (*Acer dasycarpum*), is one of our most valued trees for shade or for fuel. Among the many thousands of seedlings that have been raised, a number have shown marked variations in their leaves, and several have been multiplied in the nurseries. The engravings, figures 1, 2, 3 and 4, of the leaves of some of the varieties of Silver Maple, will show how widely they differ from the usual form, which is shown in figure 1.

"Summer Pruning" The Grape Vine.

Each shoot, upon a bearing vine, will have near its base, two or three clusters of grapes. If left to itself, the growth will continue beyond these clusters, and the shoot be prolonged for several feet, ceasing only late in the season. Each shoot will have a few bunches, and beyond them a long



Fig. 3.—CUT-LEAVED SILVER MAPLE.

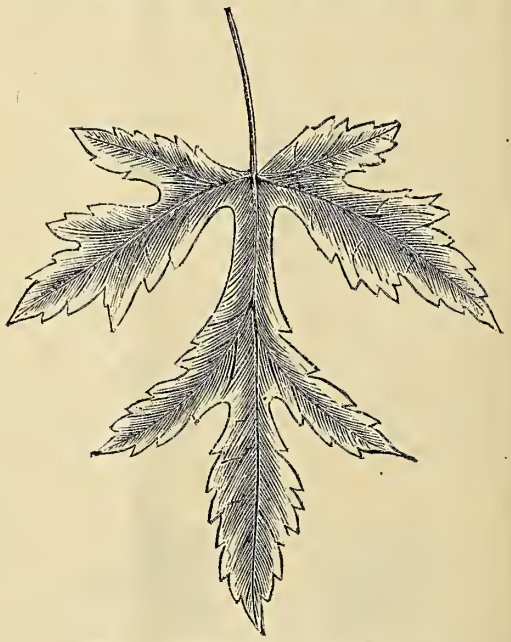


Fig. 4.—THREE-PARTED SILVER MAPLE.

stretch of vine to be removed at the autumn pruning. In the earlier days of grape culture, and before the vine was as well understood as it is at present, it was advised to "Summer-prune." After the vine had expended its energies in producing this long shoot, it was advised to cut it away in summer, just above the fruit, thus causing a severe check to the vine, and resulting in the ruin of many of the best vineyards in Ohio and elsewhere. A little leaf-folding caterpillar taught a lesson, which Husmann, and other Missouri vineyardists, were wise enough to heed. This caterpiller was found in the unfolding leaves of the shoot. It cut off the tender stem a short distance above the uppermost cluster of flower-buds. The appearance of the caterpillar caused alarm, but when it was found that the fruit upon the shoots which this caterpiller had pruned, was larger and finer than upon the shoots that had escaped, the hint was at once taken, and shortening the shoots by early pinching, was a great step forward in grape culture. If through neglect, or want of knowledge, the shoots have grown far beyond the fruit clusters, do not cut them back, but stop their growth. Pinch out the growing point of every such shoot, and stop its extending in length. The proper treatment of the laterals is, to pinch back each shoot to its lower leaf. Do not remove them altogether, but always leave the lowest leaf.

Should Farmers Grow Celery?

Formerly the cultivation of celery was attended with so much useless labor in the way of making trenches, and then filling them again, that it was supposed to be a crop only suited to the skilled gardener. The method of treating celery is now so greatly simplified, that it requires but little more skill to cultivate it, than must be bestowed upon a crop of cabbages. There is no reason why the table of the farmer should not be provided with all the luxuries that the garden can supply, and if he has not acquired a taste for celery, he will find ready purchasers for his crop. Farmers near cities and villages, are gradually turning their farms into farm-gardens, and raising crops that bring better returns than corn and wheat. Farmers who supply near markets, will do well to try a crop of celery. Mr. Joseph Harris, in his "Walks and Talks" for the present number, gives about all the directions that a beginner needs, save that we would add one point. In setting out the celery plants, be careful that they are placed no deeper in the ground than they were in the seed-bed. No portion of "the heart," or base of the leaf-stalks, should be covered with soil, as it will interfere with the future growth. Another point is, to have the soil packed firmly against the roots. If the one who plants gives a firm downward pressure with both hands, as a finishing touch, this will accomplish the proper setting. Gardeners usually go over the row, and by pressing upon the soil close to the plant with the feet, give the needed firming. If plants cannot be had nearer home, they can be obtained of the seedsmen in the large cities. Try celery, if only on a small scale, as preparatory to planting more largely another year. The final treatment, etc., will be given at the proper season.

The Fruit Harvest.

Notwithstanding considerable damage by frost in some localities, the crops in places not visited by this disaster, promise to be so large as to make this, on the whole, a season of abundance. Many new orchards, especially of peaches, will yield their first crops this year, and this increased area may make up for local losses. The means taken to improve the quality of the fruit, and to place it on the market in the most attractive form, will show their value more strikingly in a year of plenty than in one of scarcity. As there is always room "higher up," so there is always a sale for fruit of the very first-class. Among the means for improving fruit, we have often advocated thinning. While it is too late to practice this to obtain the best results, it will still pay to go over choice late pears, and possibly select late peaches, and instead of assorting the fruit at picking time, do it on the tree, thus giving that which remains one or two months or more of time in which to benefit by the nourishment that would have gone to the inferior fruit.

After the peach-grower has brought his trees into bearing he is often confronted by an unforeseen difficulty, that of picking his crop. His returns will depend largely upon the manner in which the fruit is picked, and in localities where peach culture is but recently introduced, skilled pickers are not to be had. Pickers cannot be brought from the peach districts, for they are in demand at home. All that the owner of the orchard can do is to engage the most intelligent hands possible, and instruct them to distinguish between the mature and over-ripe fruit. A peach that can be indented by a moderate pressure between the thumb and two fingers, is too ripe to go to market. The peach crate adopted by the Maryland and Delaware growers is made as follows: Two end pieces seven and a half inches wide, fourteen long, and three-quarters thick. The top and bottom are of three-eighths stuff, six and a half inches wide, and twenty-three and a half long. The sides each require four slats, twenty-three and a half inches long and two and a half wide. These are also three-eighths-inch thick.

Early pears and apples often reach market in a poor and mealy condition. This is due to delaying the picking too long. Early pears as a rule should be gathered one or two weeks before they would ripen upon the tree. The ready parting of the stem of the fruit from the branch should be watched for, and as soon as this takes place the picking should not be delayed. Early apples of first-class are never abundant in the market, though early trash may be plenty. The change of color in the skin or in the seeds, as well as the ready parting from the tree, are guides to the time for picking. It will pay with these, as with later kinds, to carefully assort into two qualities and send to market in attractive form. Bushel crates are better than barrels for choice fruit. In gathering both these and early pears, take care that the stems are not broken, as the beauty of the finest fruit is seriously impaired by a lost or mutilated stem.

Grapes of several kinds are colored before they are fit to be eaten, and many are tempted to send

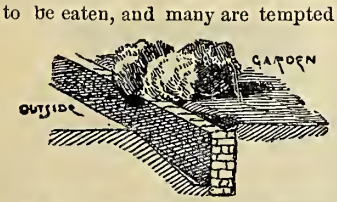


Fig. 2.—BOUNDARY OUT OF SIGHT.

them to market too early. No fruit is so improved by being thoroughly ripened before gathering as the grape, and those who would establish a reputation for quality will heed this. When grapes are completely ripe the stem loses its stiffness, and the cluster hangs directly down from the vine; the stem also usually becomes colored, or loses its green color. Within a few years the manner of sending grapes to market has greatly changed. Not long ago the flat five and ten-pound wooden box was the universal package. At present vast quantities are marketed in baskets, holding ten and twenty pounds. These are flat, oblong, splint baskets with a handle. The grapes are laid in carefully and covered with cotton cloth, either sewed on or provided with a string run in around the edge in such a manner as to be drawn tight. Another package for grapes that are not to be kept late is a paste-board box with a wooden bottom. Grapes to be packed in boxes should be exposed to the air in shallow trays in a cool and airy fruit room; the object of this is to "cure" or toughen the skin of the fruit, and this process may require a week or more.

Plums, except the common kinds, are very rare in the markets. Those who undertake the labor of saving their fruit from the curculio, find a ready sale for it at high prices. Choice varieties are packed in fancy boxes and small baskets. The great beauty of this fruit depends upon its bloom, and extreme care is required in picking and packing to prevent the removal of this. The common varieties of plums are marketed in boxes and baskets.

The Management of Irregular Grounds.

Those about to lay out new places, or to remodel old ones, should, in making their plans, take into

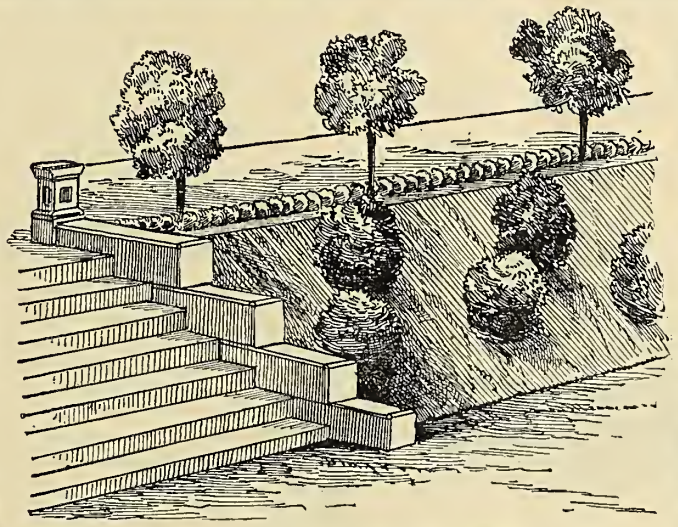


Fig. 1.—TERRACE ADORNED WITH TREES.

account the natural advantages of the ground, so far as possible. There is no better time than the present, while the trees are still in full leaf, to judge of the natural features of a place, and what changes may be necessary in improving it. A garden upon a hill-side offers opportunities for embellishment, not presented by a level surface. Such a garden may be laid out as a succession of terraces and slopes, each of which presents opportunities for ornamentation. Being highly artificial, they allow the use of steps, from a higher to a lower level. Mr. Elias A. Long, in his "Ornamental Gardening for Americans," soon to be published, gives the following method of treating terraces and slopes, which removes much of their ordinary formal appearance. In figure 1 the regular outlines of the steps are relieved by the trees at the top of the slope, and there may be introduced a line of showy plants, to be seen from below. The slope, instead of being, as usual, an unbroken surface of grass, may have its ordinary blankness relieved by planting here and there some of the many ornamental shrubs, suitable for the purpose.

In laying out grounds, it should be the object of the landscape architect, to make the area he has in hand appear as large as possible. One method of doing this is, to open vistas, through which a glimpse may be had of whatever may be beyond, whether of mountain, the sea, or rural life. Another method of making a place appear larger is, by removing all visible boundaries. It frequently happens that the boundary wall may be placed quite out of sight, as in figure 2. Where neighbors agree to dispense with boundary fences, each can enjoy the view of the other's place. If desired to mark the boundary between the two places, it may be done by means of stones, or low posts of durable wood, set in the ground on the line. On places, where it is desirable to keep the home grounds safe from intrusion by animals at pasture, a sunken fence, like that shown in figure 3, may be often employed. We have in mind a place, in which a ravine was thus converted into a barrier, separating the pasture lands from the grounds about the house in an invisible, but most effective manner.

The Pecan Nut.—Its Cultivation.

Mr. J. C. Wilson, Chattanooga, Tenn., writes us an interesting letter, advocating the culture of the Pecan tree. He regards this as the most valuable of the nut-bearing trees, those in the woods yielding many bushels each of nuts, which always meet with a ready sale at "fancy prices." As the Pecan will grow on almost any soil, even on rocky hills, Mr. Wilson thinks that every farmer should have his nut-orchard or grove, as a source of profit.

The Pecan tree belongs to the same genus as the hickories (*Carya*), and on account of the olive-like form of its nut, is called *C. olivæformis*. Its natural range is in the valleys of the Western rivers, from Northern Illinois to Texas. How generally it would succeed in the Atlantic States, is yet to be tested. In the Bartram garden, near Philadelphia, is a remarkable specimen, ninety-one feet high; this tree rarely perfected its fruit, though a young one in the same garden frequently did so. Like other hickories, the Pecan is difficult to transplant, and rarely succeeds if the trees are over one or two years old, unless prepared in the nurseries by root-pruning, and several times transplanting. Mr. Wilson prefers planting the nuts in place to setting out young trees, and in his advice to "get fresh seed nuts of a good variety for planting," he recognizes the fact that the nuts from the wild trees vary greatly. Some of the trees in a grove of Pecans, bear nuts twice as large as the average of those offered for sale, and with very thin shells and sweet kernels. The writer was stationed in Texas one autumn, near a fine forest of Pecans. The servant kept the mess table supplied with nuts of a size and quality we had not before met with. Upon investigating the matter, it was found that the boy watched the ground squirrels, and finding their holes, appropriated the nuts which these provident animals laid up for their winter stores; these, by "natural selection," were the largest and finest possible. Mr. Arthur Bryant says that he never had any success with planting in the fall, and strongly advises to do the work in spring. Nuts for planting must be kept from becoming dry or rancid. Small quantities may be mixed with sand, using at least a quantity equal-

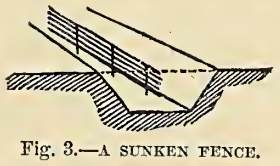


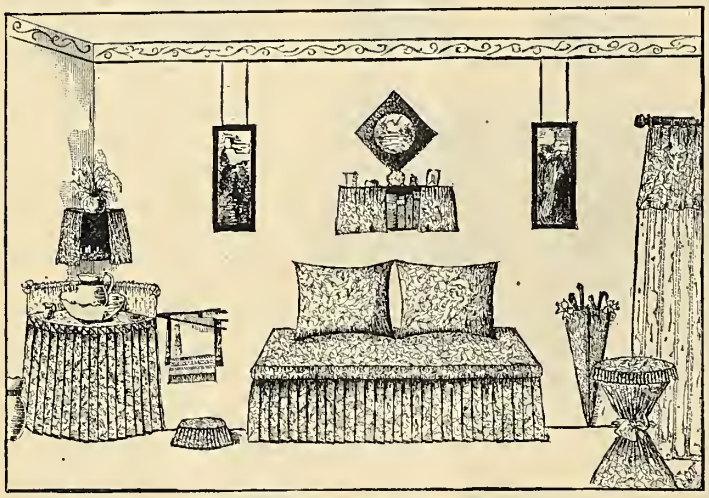
Fig. 3.—A SUNKEN FENCE.

ling the bulk of the nuts, in a box or barrel, keeping them in a cool place. Several bushels may be placed in a heap on the ground, covered with sods or leaves, and then with several inches of earth. Look out for mice and squirrels. The trees, when full-grown, will need to be thirty or forty feet apart, but if the nuts can be spared, it will be well to plant much thicker, and thin the young trees as more space is required. The thinnings will afford poles and small timber, for which there are always numerous uses on a farm. To guard against accidents, it is well to plant two or three nuts near together, and pull up all the seedlings but one.



A Bed-room in Cretonne.

A room fitted up in cretonne, as seen in the engraving, is very pretty, inexpensive, and makes a light and cheerful summer apartment. The prevailing color is pink. Cretonne of a very good quality can be bought for eighteen cents a yard. The pattern here used has a bright ground, which is nearly covered with leaves and pink rose buds. After the walls are kalsomined, which should be of a delicate shade of pink, paste on, as shown, a wide wall-paper border. This adds greatly to the appearance of a plain wall. The lounge is made of a box, six feet long, twenty-three inches wide, and fifteen inches high. Cleats are placed on the inside of the box to hold the lid. A caster should be fastened under each corner, after which the box is ready to cover. Tack on the plaiting for the bottom just over the top, so that the cushion will cover the edge. For the cushion, cut two strong pieces of



A ROOM FURNISHED IN CRETONNE.

muslin or partly worn ticking the size of the top of the box, and a piece four inches deep, to be sewed between the top and the bottom of the cushion. One side should be left unsewed until the stuffing has been placed in. For the latter, fine straw or worn out comfortables can be used. Cut a piece of the cretonne the size of the top of the cushion, and make a strip six inches deep, and long enough to go once and a half round the cushion, gather this strip, and sew one side to the piece for the top; draw it over the cushion, and run the other edge of the puff to the underside. The pillows can be of any size, but the larger they are, the better. The frame for the little table is a couple of barrel heads and a small pole thirty inches high. Tack the cretonne on loosely enough to allow it to come together in the middle, after which it is drawn down, tied, and finished with a large bow of pink ribbon or a band of the same material. Make a narrow plaiting of cretonne and tack around the top of the table. The lambrequin for the window is a straight piece, finished at the bottom with a deep hem and sewed on the curtain rings. The umbrella case is not merely ornamental, the pockets are made of the cretonne doubled or lined with some heavy muslin, the back being covered pasteboard. Hang it on the wall with small brass rings, sewed at the top, corners, and bottom; tack a small bow of pink ribbon at each corner of the case.

The corner wash-stand is made of a triangular board, rounded on the outer edge, and supported by three stout legs. Tack the cretonne on the top as seen in the design, leaving it loose at the bottom, so that shoes and other articles can be placed behind it. Cover the top with marbled oil-cloth, and make a screen of dotted Swiss over pink cambric, to tack back of the wash-bowl. The little corner closet which is so convenient for bottles and wash-stand necessities, is made of two ebonized pieces of wood The curtain is hung with small brass rings on a nail which is fastened at each corner. The book shelf is constructed in the same manner. The frames for the panel pictures are ebonized pine, or they can be gilded if preferred. The diamond-shaped frame is also made of pine, covered with garnet velveteen. It makes a very pretty frame, and when it is hung up high it cannot be easily distinguished from a velvet one.

Hanging Shelves.

Shelves of some kind for holding books, papers, etc., are always useful in the kitchen or sitting room. Shelves fastened to the walls are not as convenient as movable ones. If you paper or whitewash the room they are in the way; to fit the paper neatly about them is quite a job, and only a skilful whitewasher can use a brush around bracket shelves without leaving streaks in the wash. A set of hanging shelves can be cheaply and readily made. Take as many pieces of board as you want shelves, of the width and length desired. If there are two windows on one side of the room, not more than three feet apart, make the shelves long enough to fill the wall space between them. Paint the boards or stain them to imitate walnut or oak, or cover them smoothly with glazed cambric, and tack a row of fringe about the edge. If you wish the shelves more ornamental, make narrow lambrequins to tack to the front of the shelves. These can be made of some dark cloth, with bright flowers cut from cretonne appliqued, fastening on with an embroidery stich around the cut-out flower. To fasten the shelves together, procure some stout cord of a color to match the stain or covering of the shelves. Before attaching the cord, cut a piece of board as long as it is desired to have the shelves apart. Place this between the shelves while attaching the cord, and it will hold the shelves just as far apart as desired. The cords supporting the shelves should be strong, and the nail or hook to which the shelves are hung, needs to be stout and firmly driven into the wall. Let us have more hanging shelves.

Notes on Present Styles of Dress.

Simplicity is the rule for walking suits, cloth and velvet dresses to be made perfectly plain, and a straight collar or ruche, with a bar pin as the only finish for the neck, bows and ties at the throat and necklaces being completely abandoned. Ribbons, however, appear in the place of flowers on evening dresses, made up into rosettes, the ends cut into sharp points.—Watches, too, instead of being hung by a chatelaine, are now tied by a bright ribbon to the seventh or eighth button-hole, from the top, and worn inside the waist. The touch of color is very pretty in a dark costume.—The hair is still worn in a low knot at the nape of neck for the street, but for full dress is wound in a loose, irregular coil on the top of the head, with a crumpled piece or bang in front. School-girls with golden brown locks bind the hair down with bandeaux of narrow black velvet. It is passed over the head four or five times, and tied in a bow behind the left ear. Young girls carry bags of velvet or satin suspended from the arm by silk cords. These hold their handkerchiefs and pocketbooks, or any bit of fancy work. A monogram can be embroidered on them. Long dove-gray or blue gauze veils seem to be the most popular. They are crossed at the back, and the ends brought around in front, where they are neatly secured by a small lace pin.

A quaint Mother Hubbard apron is crocheted of écru linen thread, in tiny shells, and bordered by a large shell edging. It is trimmed with narrow cardinal satin ribbon, three rows run in across the bottom, one on each side and two through the band. A pocket is put on one side, and tied at the back with broader cardinal ribbon. If a bib is added, it is pinned up with tiny silver or gold pins in some odd design, as are the bibs of all aprons. Narrow black velvet ribbon is worn tight around the throat.—Ear-rings are very small, and many prefer not to wear any, which is perhaps the better way.—Corsage bouquets are prettiest of natural flowers, and are worn high up, on the left side.

Hanging a Broom.

Mr. C. Lederer, Whitesides Co., Ill., sends us a sketch of a plan for hanging a broom, which is convenient, and keeps the brush part from getting

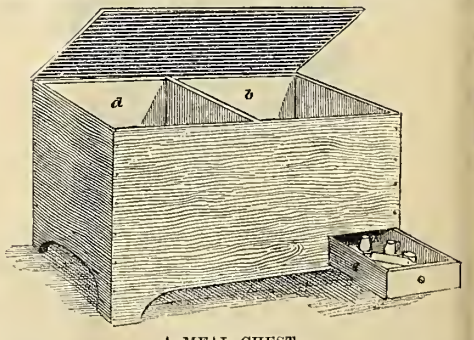


HANGING A BROOM.

out of shape. Two strong nails are driven five inches apart in a perpendicular line, and the handle of the broom is placed between them, in the position shown in the accompanying engraving.

A Convenient Flour and Meal Chest.

Half the house-keepers in town and country use the flour and meal direct from the bag, sack or barrel as is needed, resulting in a considerable loss. The flour is unavoidably sprinkled and dusted over the floor and surrounding articles of furniture. This can be avoided by using a chest or box, that is easily made, and may be placed in one corner of the pantry. A desirable size for the chest, is two and a half feet in hight, three and a half feet in length, and fifteen inches wide, made from thoroughly seasoned pine boards, planed upon both sides, closely fitted together and secured with nails and glue. It is divided into two apartments, the larger one, *a*, being used for flour, the one, at *b*, for meal, while near the bottom is a drawer, *c*, in which the rolling pin, flour measure, cup, sifter, spring balances, and other articles may be kept. The chest should be provided with a close-fitting hinged cover, the whole exterior being painted some light color. No paint or oil is used upon the inside. The bottom is raised four



A MEAL CHEST.

inches from the floor by hollowing out the ends and sides, as shown in the above engraving.

THE HANDS.—A "hard-handed" farmer or mechanic need not be ashamed of this mark of his calling. His hands may be "hard," but they may be clean. Always use soft and warm water to thor-

oughly wash the hands. Hard water leaves them rough and unpleasant. Let the hands soak for a minute before soaping them. A nail brush is of great aid in keeping the hands in order; one made with unbleached bristles is by far the most durable. This should be used with soap not only on the nails, but all over the hands, especially on the most soiled portions. Common soaps often contain an excess of alkali, which roughens the skin, and of rosin, which leaves the hands sticky. Castile soap is vastly superior, is quite equal to the highly perfumed toilet soaps, and not very expensive. Keep at hand a lump of pumice stone, with which to rub any special stains and any rough places on the palms. Paint and axle-grease can be removed by first oiling the hands, or lard will answer, thoroughly rubbing it in before using soap. If the skin is disposed to chap, use with the soap a tablespoonful of Indian meal; rub the hands with this thoroughly, and after rinsing apply glycerine mixed with four parts of water, rubbing the hands together until the water evaporates.

A Laundry Cushion.

Any one having washing done out of the house, will find the use of the laundry cushion here illustrated, a convenient method of keeping a list of articles. A full list of the articles likely to be in



A LAUNDRY RECORD CUSHION.

the wash is written with indelible ink on a piece of unbleached linen about six inches long by ten wide. The name of each article is followed by a row of figures from one to ten inclusive. The linen is then sewed to a second piece of the same size and made into a cushion by stuffing with hair or saw-dust. A cord, by which to hang it up, is fastened to the upper corners, and a row of pins is stuck along the edge. The number of any article in the wash is recorded by sticking a pin in a corresponding number opposite the name of the article. If four tablecloths are sent, a pin is stuck in the figure four, and if there are twenty-four napkins in the wash, pins stuck in figures ten, nine, and five, keep a correct count. MRS. BUSYHAND.

A Word to Parents.

REV. E. P. ROE.

See that your child never leaves any task half done or slovenly finished; and therefore give not too many tasks. Thoroughness is the corner stone of success. There is no place in the world now for smatterers, who know a little and only a little of everything under the sun. There is always an honorable place for those who can do any kind of honest work in the best manner. Show the child, from the experience of others, that little or no progress is made by spasmodic and intermittent effort. The world is now so advanced and competition so keen that genius must ally itself with patient, persistent work, and with the deftness which comes only from continuous practice. The young are prone to dream of what they will do in the future. The history of others proves that they will never do much, unless they are doing their present work thoroughly. They do not realize this, and mere arbitrary assertion of the fact usually makes but slight impression. Biographies of successful men, whether read from the libraries or furnished from your memory of neighbors, establish the truth in their minds, and such biographies should be freely read by children.

The Buffalo Moth.

Unlike the common Clothes-moth, the destructive Buffalo-moth is not the larva of a proper moth, or miller, but a beetle. The perfect insect is a very pretty beetle, about an eighth of an inch long, black and handsomely marked with scarlet and white. The grub is about three-sixteenths of an inch in length, but on account of its long brownish hairs appears larger. The insect was first noticed in New York State about ten years ago, but has since spread to such an extent that we have inquiries concerning it from every State. Though most destructive to carpets, it attacks woollens of all kinds as well as feathers and furs. It is in the larval or grub state that the insect does its mischief, the perfect insect or beetle regaling itself on garden flowers, especially the Spiræas. The grub works under the edges of carpets, often making sad havoc, it sometimes takes shelter in a crack in the floor and working along that cuts the carpet on the line of the crack as completely as if it were done by shears. This habit of working in the cracks suggests the utility of stopping up all crevices before the carpet is laid down. Putty, hard soap, and plaster of Paris have been suggested as materials for filling the cracks, especially those between the base-board and the floor. Those who vacate their houses for several months at a time should be careful to not leave the insect in possession, as the results may be most disastrous. The most effective method of destroying the insect while the carpet remains in place is the use of steam. A wet, folded sheet is laid along the edge of the carpet. Upon this cloth several hot flat-irons are passed. These generate an abundance of steam which penetrates the cracks and destroys the insects. Furs or articles of woollen, not conveniently steamed may be placed in a tight box, or a wash boiler and a small quantity of benzine poured in; if the box or vessel be kept closed, the vapor of the benzine will kill this as well as the common Clothes-moth. This is one of the most destructive of the house-keepers pests. The insect is a native of Europe, and is known to science as *Anthrenus Scrophularia*. It is supposed to have been introduced into this country in imported carpets.

Light Work for Mid-Summer.

The months of July and August appear to have been intended for rest by the Author of the seasons. Through the stimulating cold of winter, the fresh, mild breezes of opening spring—even later, when all nature is awake, and we open the doors and windows to catch the sound of birds and insects, and to breathe the odors of buds and blossoms, we can work with a will and feel interested. Even the dreaded "spring cleaning" had its pleasures as we close up the dreary furnaces and stoves and pack away all reminders of the bitter cold. As summer advances, while we are alive to its beauties,

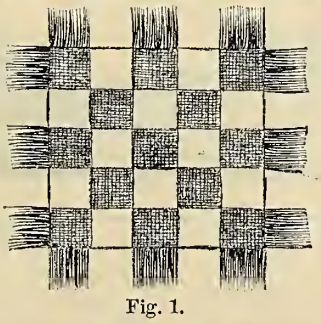


Fig. 1.

we like to sit under the trees, on the piazzas, or lie listlessly in the hammocks. But to most of us rest does not mean idleness; and to be obliged to spend our time for many days with head and hand unemployed, would be misery. "I could be happy on a desert island with my books and work," said a lady some time ago—one who was prominent in society, and actively engaged in charitable work through the winter; but when the time for resting came she had to be busy still in another way. So while it is well to lay down the heavier duties and cares of life for a few weeks, it is a pleasure to have some light work to "take up," and the revived interests in fancy work of late years, gives a wide scope to one's taste and skill. We say revived interests, because embroidery is one of the oldest of ornamental arts, and one in which there has been no advance of late. Knitting too, now in fashion, was one of the favorite occupations of our great grandmothers, and little children in the public schools of that time had stint of "rounds" on their stockings given them as a daily exercise. Home-made edgings and insertings, both knitted and crocheted, are much used now, and it is a pleasure to study out new patterns for them. It is said that good cotton thread is better than linen, although the latter is rather prettier. Hair-pin crocheted edging is very quickly made, and it is pretty and durable. It may also be a foundation for wider and more elaborate edgings. Make a slip loop and pass it over one side of the hair-pin, then turn the pin around, and you will have a loop on each side. Draw up with the hook a loop through the first loop, * take out the hook, turn the hair-pin, and insert the hook in the loop from which it was withdrawn; then make a double crocheted stitch under the left hand loop—repeat from *. Drawn work is very popular and beautiful. Broad insertings are made of it to trim children's dresses, bed linen, toilet sets, etc. We give an illustration of one which may be made of coarse or fine linen. A pretty and inexpensive gift for a lady is a cake-basket cover, made in a square, with fringed sides in this same pattern. Figure 1 shows the way the threads are drawn, and in figure 2 is seen a portion of it finished. A pretty gift for a gentleman is an umbrella case. The foundation is of paste-board. It may be covered with gray linen, or any other plain, durable cloth. Two strips are embroidered and sewed on the front before making up. They may be ornamented according to one's fancy. A monogram or initial is added at the top as seen in figure 3. A very pretty pen-wiper is made to imitate autumn leaves. They are cut out of flannel, red, brown, yellow, like the leaves, veined with silk, and notched on the edges—then grouped together. Another is a carnation pink. The flower is of red flannel, notched and folded like a pink, attached to a wire stem covered with dark-green cambric. The leaves, of cambric, are made on fine wire. This is novel and exceedingly pretty.

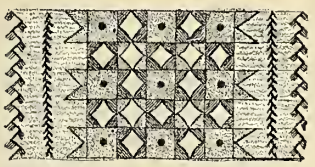


Fig. 2.



Fig. 3.

ETHEL STONE.

A Lead-Pencil Sharpener.

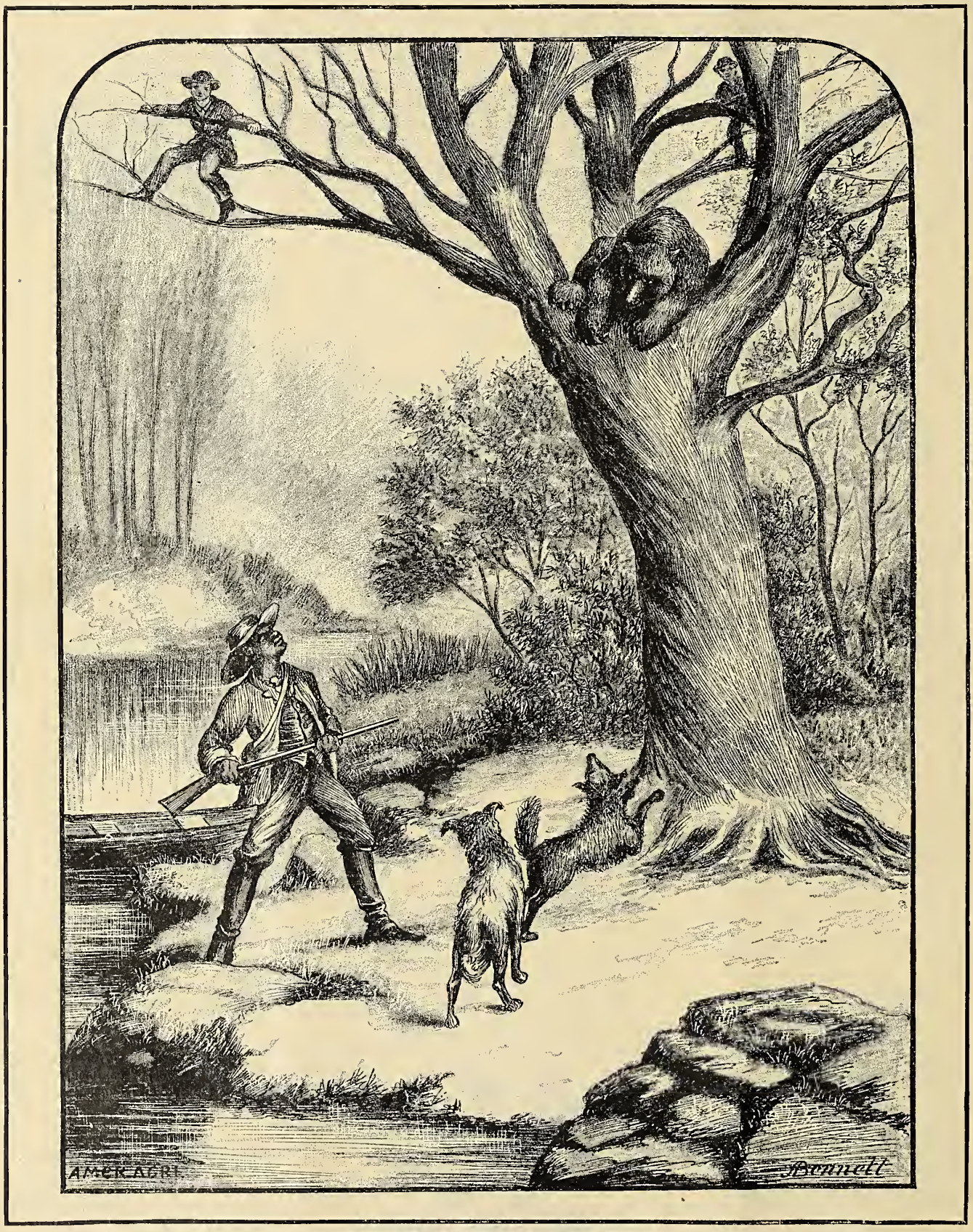
Cut a piece of cigar-box or other thin wood, five or six inches long, by one wide. Upon both sides glue pieces of sand paper of a medium grade. Sharpen the pencil with a knife, and finish the point upon this implement, giving either a round or a flat end, as desired. When the point becomes dull, it may be repeatedly "touched up" on this sharpener without recourse to a knife, and which is a very desirable matter, without soiling the hands. By striking the sharpener against any object, the particles of lead are readily removed.

BOYS & GIRLS' COLUMNS

An Adventure With Bruin.

A VIRGINIAN.

Walter Wheelbin is a Richmond boy who had never experienced any rural sports until October last, when his cousin, George Wheelbin, who lives on the Gauley River, in West Virginia, wrote him a letter in which he kindly insisted that Walter should pay him a few weeks visit, at the same time not omitting to mention that chestnuts, chincapins, persimmons, and wild game were unusually abundant. The invitation promised too much field-sport and mountain air to be declined, and Walter, one frosty morning, alighted at a little station on the Chesapeake and Ohio Railroad, where George, with horses, was waiting to meet him, and after a ride of a few miles, found himself at the home of his country relatives. In the Gauley River are numerous small islands, many of them mainly large rocks, with sometimes sufficient earth to nourish the growth of a few trees and bushes. The one on which the adventure I am about to relate, took place, is known as Dead Chestnut Island, on account of its having a solitary, large, dead chestnut tree, standing on it. One afternoon Walter and George set out in a canoe for the purpose of exploring a number of these miniature islands, the first among which being Dead Chestnut. Just as they were leaving, a noise, as of some animal feeding, and a shaking of the bushes, attracted their attention. They both stood in breathless suspense, with their eyes fixed intently upon the shaking chincapin bushes, when to their horror the huge, black head of some wild beast, suddenly presented itself in full view. For a short time they stood speechless, and then fled for the canoe, shouting, "A bear! A bear!"—"Gone!" ejaculated George,



TREED BY A HONEY HUNTER.

Drawn and Engraved for the American Agriculturist.

pointing to the place where they had left the canoe. "Gone! oh! why didn't we pull it higher up?" —"Too cold to swim, and too swift, too!" said Walter, gazing ruefully into the ice-cold current; "and the island's entirely too small on which to pass the time pleasantly, so long as there's a bear on it!"—"Let's climb the old chestnut," said George, and the suggestion was immediately acted upon. "Get far out on the slender limbs, Walt, where the bear couldn't go, if he should take a notion to come up," said George, but the command was wholly unnecessary, for Walter had instinctively crept as far out as was safe and convenient. From their lofty positions they had a good view of their shaggy enemy, as he roamed at will over the island, picking up mouthful after mouthful of chincapins, and occasionally glancing up, with apparent delight at his treed captives.—"I think I see the canoe away down at the bend," said Walter. "I'm afraid we shall have to try swimming, or else remain here all night."—"I could never stem that current; besides we would both freeze to death in that cold water," replied George, his teeth rattling, and his very frame shivering as a cold, frosty breeze came roaring down the river gorge. "But look!" he added quickly. "Look, he's moving toward the tree!"—"Wonder if we couldn't scare him away?" asked Walter, and then began a series of shoos, etc., to all of which the bear paid no attention, and after walking around the tree two or three times, began very leisurely to ascend.—"Let's jump out and try the water!" yelled George. —"That would break every bone in your body," was the encouraging reply.

The great brute, with no apparent effort, moved slowly up the leaning trunk, until he reached the main fork, in which he coolly squatted, and began to inspect, by alternate glances, his very much frightened prisoners. He did not seem inclined to quit the fork, but sat there quietly, every now and then inserting his paw in a hollow limb, and then withdrawing and sucking it greedily.—"Honey," said George, "Houey. That's what's brought him out here. I have heard father say that a bear will go anywhere, or do anything for honey. Look at the bees he's stirring out, and oh, what eyes!" —"Between the bear, the bees, and the cold, we'll die yet," muttered Walter, between his chattering teeth.—"I believe," said George, pointing down the river, "I believe I see a canoe coming this way."—"I believe so myself," replied Walter, glancing from the bear to the canoe, and then from the canoe to the bear.—"Oh, Walt, I think it is Seeth!" exclaimed George, delighted at the prospect of being released. "Oh, yes, I'm sure it's Seeth!"—"Seeth, sure enough!" shouted Walter, clapping his hands, as that individual's features gradually grew into recognition. "It's Seeth, sure's we're living!"—"Hurrah Seeth! Come quick! A bear! A bear!" they both yelled, waving their hats in order to attract his attention.

Seeth was a good-natured negro, who, before the war, had belonged to George's father. He had caught the canoe as it drifted by his cabin, and upon recognizing it as George's, became greatly alarmed lest some accident had happened to him and Walter, and with this gloomy thought uppermost in his mind, began rapidly paddling up the river in search of them. Upon finding them in such a terrible predicament, he pushed hastily to the shore and ran as fast as he was able for his gun and dogs. Although his cabin was at least half a mile away, he was not long in going to it and returning with his rifle, ammunition, and two dogs. Throwing himself into the canoe, and calling in his dogs, he soon reached the island.

"Be careful how you shoot, Seeth," requested George, who recalled a painful instance of his markmanship of a few months before, when he fired at a crow on the pasture bars and killed a Jersey calf, standing several yards out of range.

The words were scarcely spoken when the roar of the powerfully charged weapon reverberated along the banks of the river without producing any apparent change in the position of the bear.—"Whistled pretty close to my head that time," said Walter, with considerable alarm.—"Moon's in de ram," exclaimed Seeth, who believed firmly in all superstitions. "Other times shoots as straight as any gun you ever seed. In de ram it shoots at least two feet outen de way."—"Then aim two feet the other side of him," cautioned Walter, who, in his fright, seemed to have little, if any, consideration for the welfare of his cousin, who was on the side designated. In a minute the gun was again loaded and fired, and the great, black creature pitched headlong to the ground with a jarring thud, and was immediately pounced upon by the eager dogs. He was by no means dead when he alighted, and Seeth, in his desire to finish the work he had so clumsily begun, and to assist his friends, the dogs, assaulted him with the butt of his rifle. One blow, and the whole scene changed. The bear, infuriated with pain, immediately turned upon his tormentor, and sent him flying around the island at a very rapid speed.

Around and around the island he flew, scampering over the rocks and through the bushes, with the bear and the dogs close at his heels, occasionally turning to deal a blow with his rifle, which he still managed to hold. "Run! run! Seeth!" shouted the boys, thoroughly alarmed for his safety. "Jump into the canoe and push off." This command was obeyed, but no sooner had he taken up the paddle, than in fell the fighting bear and dogs, nearly on top of the poor negro, who lost no time in extricating himself and resuming his flight around the island's circumference, every now and then muttering something about the lack of space being unfit for such an encounter, and that he would prefer more territory the next time he might be so imprudent as to attack a bear.—"Hurrah, they have got him now! stop Seeth, they have got him now!" but Seeth was cautious enough to put the diameter of the island between himself and the scene of conflict before concluding to come to a dead halt. The violent struggling of the bear and the dogs had overturned the canoe and thrown them into the water, where the bear, much weakened by the effects of his wound and fall, rapidly succumbed to the vicious dogs, and George and Walter, who had now ventured from the tree, assisted by Seeth, somewhat recovered from his fright, after belaboring him lustily with clubs and stones until there was no signs of life, pulled him upon the island.—"Plumped him fair and square 'twixt de eyes," blew Seeth between his hurried breaths; "but it tuck him a powerful long time to 'spire." The bear was now dragged into the canoe, and all, including the dogs, were soon afloat.

Considerable surprise was created at the Wheelbin homestead by the arrival of the boys with proof of an adventure of entirely too serious a character to be passed over without causing some conjectures on the part of the older members of the family, as to what the consequences may have been. Early the following morning, Seeth made his appearance with his butcher-knife and skinned the bear, it being decided that he should have the flesh and Walter the hide, which, with great pride, he took to Richmond, and had an overcoat made of it, in which he had some photographs taken, and sent one to George in commemoration of their perilous encounter upon the island.

A few weeks after Walter's departure he received a letter from George, of which the following is a quotation: "Walt, what do you think? That bear wasn't a real wild one at all, but belonged to an old fellow named Hermiter, who lives three or four miles up the river, and when he found out, after so long a time, that you, Seeth, and I had killed him, why, he just raised the biggest fuss you ever heard of, and Seeth, he's nearly scared to death yet, but says there is no use in making any matter about it now, because he has eaten him nearly all up. Old Hermiter raised him from a little cub, and thought the world and all of him, but he managed somehow to escape from his pen and went to the island purposely for honey, so father thinks. It is very humiliating to be deprived of the honors I have congratulated myself upon winning in an encounter with a ferocious animal, by some one coming and convincing me beyond the least doubt, that he was as gentle and harmless as a kitten. Don't you think so yourself? I have never told it before, but I have always thought it remarkably strange that a wild bear would deliberately climb a tree while two boys were up in it. No wonder father shook his head. I don't expect you will so much appreciate your overcoat after reading this statement of the bare facts."

The Doctor's Talks.

In April last I told you something about the hatching of eggs of the toad and frog, and a little of my experience with hatching the eggs of the hen in an incubator the year before. This spring



Fig. 1.



Fig. 2.

I have had the incubator in operation again, and had much better success than before, probably having learned to imitate the old hen more closely. This time, too, I have been able to observe more of the changes that take place within the egg. In figure 1 in April Talks, was shown the egg as it appears after the first two or three days in the incubator, or under the hen. Figure 1 here, shows the same, but the very beginning of the chick, given separately and magnified. A few days later the creature appears to be all head, as in figure 2, and



Fig. 3.



Fig. 4.

looks as if it might turn out to be a serpent rather than a little chicken. Figure 3 gives the appearance in two or three more days, and it is only after ten or twelve days that we begin to make out any resemblance to a chick, as shown in figure 4. It can not be regarded as a very handsome bird, still we can see the beginning of the bill, the eye looks more like a chicken's eye, while the projections that will be the wings, legs and tail, are plainly seen.

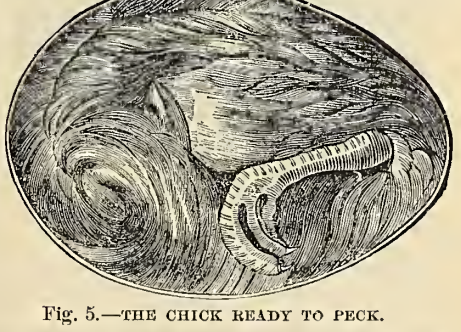


Fig. 5.—THE CHICK READY TO PECK.

By this time the bones have begun to form, and the chick grows so rapidly, that it soon quite fills the shell. Indeed, it has to be doubled up in order that it may be stowed (as the sailors say), in so small a space; the head and feet are brought together, and the chick, as in figure 5, is in a position that looks so uncomfortable, that you would think it would like to get out of it as soon as possible. But it can not come out until the twenty-first day, and it is most wonderful to observe how closely this time is observed by the little prisoners. Many

suppose that the old hen pecks at the shell at the right time and lets them out, but this is not so, the shell is always broken from within. As the chick is doubled up as it grows, the bill is always next to the shell, just where it is needed to break the way out to light and air. It is said that there is a hard, horny scale on the bill, to assist in breaking the shell, which falls away soon after the chick is hatched, but I did not think to look for it. Some of the chicks appear to exhaust their strength with the first pecking, and afterwards are not able to liberate themselves, and unless they are helped they will soon die. When first out of the shell, they are wretched looking objects, their down being wet, they seem to be half naked, and quite unlike the lively fluffy little fellows they are as soon as they get dry. I have often said that you need not look beyond your own farms to find wonderful and interesting objects. Can anything be more full of interest, or a greater wonder, than the formation of a living chick, with its many parts, its blood, bones, feathers and all, out of the almost liquid, and apparantly lifeless contents of the egg!

Tree Toads, or Tree Frogs?

One young correspondent wishes to know something about tree toads, and if they are properly toads or frogs. If he means to ask if they are kinds of the common toads and frogs living in trees, I can answer, neither. The tree toads are as different from these, as they are unlike one another, though all belong in the same order, the Batrachians. The creatures are called both tree-toads, and tree-frogs, though most commonly by the former name. Naturalists place the tree-toads in the genus *Hyla*, the one found in the Northern States being *H. versicolor*, the changable-colored, while of the Southern States is *H. viridis*, the green tree-toad. Figure 1 represents the first named, which shows the character distinguishing these creatures from both toads and frogs—the little disks at the end of each of its fingers and toes; these, sometimes called suckers, are supplied with a sticky substance, which allows them to climb upon smooth surfaces of all kinds, even glass. The tree-toad has fine and prominent eyes; the color of this

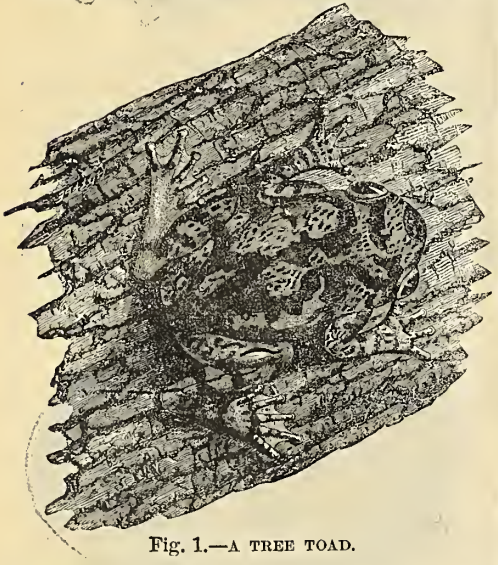


Fig. 1.—A TREE TOAD.

one varies from pale ash-color to dark-brown, and is marked with blotches of greenish-brown. It has the power of changing its colors to make them darker or lighter, but does not assume any different colors. Like the frogs and toads, the tree toad lays its eggs in the water, and in their younger days they are tadpoles, and during the winter they remain dormant in the mud of ponds, etc. Though quiet during the day, at the approach of evening, they are very active in pursuit of insects. The croak of the tree-toad is familiar to all who live in the country, even if they have never seen the animal. It is heard especially at night, though the creature is not silent during the day. It is a common belief that when their croaking is heard in the day time it is a sign of rain; but careful observations show that the creature croaks in the day time nearly every day, and though the sound must

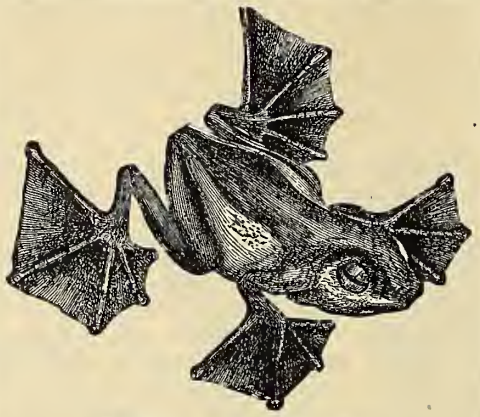


Fig. 2.—A FLYING TREE FROG.

sometimes be heard just before a rain, the two have no relation to one another. There is but one tree-toad in Europe, and this is so nearly like our Southern one, that naturalists at one time thought they were the same; it is found also in Asia and Africa. There is found in the Island of Borneo, a tree-frog so curious, that I give an engraving (fig. 2,) of it. It has very long fingers and toes, which are webbed their whole length. By filling its body with air, and spreading its webbed extremities, it can sail from the tops of the highest trees and descend in safety. Though called the Flying Tree-frog, it can no more fly than our flying squirrel, which spreads the loose skin between its fore and hind legs, to break the force of its fall. Both, like boys at coasting, find it fun to come down, but getting back to the starting point is not so jolly. At least I did not used to find it so, and I don't think coasting has changed much in that respect since I was a boy. THE DOCTOR.

The Floral Wedding.

My friend Mary Gold received, the other day, a letter from her dear John Quill, describing a wedding that was celebrated at the Greenhouse, when the Blue Bells were rung, and Trumpet Flowers sounded. Sweet William and Polly Anthus were the happy pair. The Greenhouse was beautifully adorned for the occasion with vines, and the Virgin's Bowers were all perfumed with lavender and ambrosia, and box after box of bridal presents stood together in long rows. The hour appointed was four o'clock. Dan de-Lion was one of the earliest arrivals. He was much exhausted on the way, and had a wilted appearance. Old Leander and Mother Wort rode together, but when they were passing through Dog Wood, were upset, and the colt's foot being lamed, they borrowed a sorrel horse. The Snapdragons and Thorns were not invited. Earl Sycamore was so sick that his physician, Doctor Moss, would not allow him to go, and so he mustered strength to write, and let his regrets present themselves. The Snowdrops and Snowballs had gone north on a summer visit to the Ice-plants. At length the merry guests began to come in crowds, or flocks, and were received by Madam La Burnham, assisted by the lovely Amaryllis. There were Mr. and Mrs. Orange-blossom, and all their family, and a great many young ladies named Lily and Rose. All the De Luces were there, and a whole troop of Evening Beauties, to whom the Cockscombs displayed their knightly qualities. The most distinguished cavalier was Mr. G. Ranium, who, as is well known, is the Lady's Delight. Mayor Convolvulus paid his addresses to the wall-flowers, and a Ragged Robin was seen searching for little Cora Andre, who had gone away to play with Johnny Jump-up and his little sister Violet. There was a Mourning Bride, who sadly remarked that when love lies bleeding, no amount of penny royal could ever make up the loss. She wandered off into the garden among the yews and cypresses, and finally sought the society of Weeping Willow.

The Primrose sisters came as dignified and unapproachable as ever, and numerous Old Maid Pinks and Bachelor Buttons, looking as aged as century plants, were continually wishing the Balsams would arrive, and inwardly sighed for balm, while the dead leaves of their hopes were rustled by the passing breeze. Lady Teasel and Baron von Tansy made themselves conspicuous by their bitter sarcasm, and the Thistles were so pointed in their remarks that they were driven out with golden rods.

The company became impatient because the Bridal Rose and her Sweet Sultan delayed to come until long past the time, and the joke went mirthfully round as to why Jack-in-the-Pulpit in his clerical attire, did not put in his appearance, but Old Monk's Hood had been engaged to perform the ceremony, so all were satisfied.

At this crisis, Sweet William and Polly came into the large company, followed by Jessie Mine, Rose Mary, Heart's Ease and Love-in-a-Mist, for the charming bridesmaids. The ushers were the Passion Flowers. Nightshade had gathered around, and the Star of Bethlehem shone pale in the light of the new moon, when Crown Imperial, under the linden tree, gave away the bride. After the ceremony the salutations were begun by the Tulips, and sweet congratulations were exchanged by all except Madam Mimosa, who, shrinking in her shivering sensitive way, said "touch-me-not." The dazzling splendor of the scene was magnificently reflected by the Venus' Looking-Glasses. At the ringing of Flora's Bell, a supper was served. There were sweet peas and sugar leaves and honey dew in king's cups, great dishes of pollen, and other delicious things, not omitting to mention the juice of the Madeira Vine. The head waiters were Robin Runaway, Bouncing Bet and Running Rose. Finally there was a grand dance to the merry music of the Canterbury Bell ringers, and they kept this up until the ladies' slippers were worn out.

At this point Venus' Car appeared, gorgeously made of Southern wood, and decorated with evergreen, drawn by ponies named Horse-Chestnut, which the driver, to distinguish them, called Basil and Bay. As soon as the bridal party were in the car, and it began to roll away, that ancient and honorable leather dealer, familiarly called Shoe-Mack, picked up the ladies' slippers and some spearmint, and tossed them after the carriage, while some of the guests rushed on after the prancing steeds, with speedwells and larkspurs, at which the sages retired, disgusted at so much levity. The driver, Michaelmas Daisy, who drank all the currant wine he wanted, put on foxgloves, and away they flew to the docks. The bridal pair set sail on the barque Althæa, expecting to see, after their voyage, London Pride, German Ivy, Rose of Sharon, Indian Cress and China Aster. MIGNONETTE.

Illustrated Rebus.



The Origin of News.

"What do you understand by the word news?" This is a question that was asked me the other day. "Why! something new that has occurred, I suppose," was my reply. "But do you know how the word originated?" I was obliged to confess my ignorance, and imagining my young readers may be as much in the dark, will tell them my friend's ingenious explanation, which she said she came across in an old book, printed long before you or I were born. N, you know, stands for north; E, for east; W, for west; and S, for south; so the four letters were combined together to form the word NEWS, now used for all that is happening north, south, east and west. A newspaper, therefore, tells us by its very name, that it is a chronicle of events in all parts of the world. A. C.

Does the Mulberry Tree have Flowers?

This question is asked by a young friend. He finds very young mulberries on the tree, but never sees any flowers. The flowers are there, though, not being at all showy, they may readily escape notice. The Mulberry and Blackberry, while they look much alike, are very unlike. The Blackberry is preceded by a large, showy flower, and the little grains of which the fruit is made up, are the many pistils of the flower ripened. The Mulberry fruit also consists of numerous rounded grains, but in this case each grain, or little fruit, is preceded by a separate flower. If you examine the Mulberry early enough, you will find what you take for a young fruit, to be numerous small flowers placed closely together on a little stem. To be sure, they are not showy flowers, their parts being greenish, but they have stamens and pistils (in separate flowers), and the ripening of the pistils of many flowers, makes what we call the fruit of the Mulberry.

A Rare Little Plant—Obolaria.

A young man—I suppose he would not like to be called a boy, as he is studying botany—has



A RARE PLANT.

recently sent me from his home in New Jersey, a plant which puzzled him. The plant was about three inches high, of a purplish-green color, very smooth, and in the axils of its wedge-shaped leaves were one to three small purplish or dull white flowers. The plant's botanical name is *Obolaria Virginica*; it is not common enough to have received any other. The name is from *obolos*, a small coin of the Greeks, but there is nothing about the plant that makes the name appropriate. It is one of the rarest of our plants, and as other young botanists may come across, and be puzzled with it, I give an engraving to help them. It belongs to the Gentian family, though it has but little resemblance to the other members of this family. THE DOCTOR.

Banner Photograph Frame.

In a piece of very heavy paper, not pasteboard, eight and a half by four inches, cut an oval a little above the center, large enough to show as much of the photograph as desired. Cut a corresponding oval in a piece of colored velvet, but a quarter-inch smaller all around. In the two upper corners of the velvet work a spray of yellow wheat with silk floss. Across the lower edge baste a strip of narrow velvet ribbon and work it down with the yellow floss. Along the lower edge make a narrow fringe of sewing silk the color of the band. Thread a needle with the silk doubled several times, sew through the velvet near the edge, tie and cut off at the right length for the fringe. By repeating this across the lower edge, a very pretty fringe is made. Place the velvet flat on a table, lay the paper correctly on it, turn the edges of the velvet up on the paper, and fasten with very thick mucilage. Only the top and two sides are to be turned over; the fringe along the bottom is to hang down. Cut into the velvet around the oval as far as the paper; then turn the pieces over on the paper and fasten them. Fasten a silk cord and tassel to each upper corner of the banner. The photograph is held firmly in place by taking two or three long stitches across on the back. Suspend it on two brass-headed tacks.

Surplus Fruit—What Shall be Done with it?—Evaporating.

One need not be very old to recollect when the sunny-side of a farm house was festooned with strings of apples hung up to dry, while in front of the kitchen door were trays containing various fruits. Fruit dried in either of these methods is dark-colored, and has been exposed to dust and to the visits of insects. The fruit thus dried, when sent to market at the present time, comes in competition with "evaporated fruit," which sells for several cents a pound higher. "Evaporated fruit" is now a regular article in the market, and we receive many inquiries concerning it. The term "evaporated" is applied to fruit dried by artificial heat, excluded from the light while drying, and sometimes bleached by the use of the fumes of burning sulphur during the drying process. The first evaporating machines were so large, and required such a large capital to run them, that their introduction was slow. Within a few years, there have been introduced portable machines, which, as we know from a trial of one of them, will turn out as salable a product as the large affairs. This year it will probably not pay to barrel and send any but the best apples to market, and all those having a surplus of common fruit, should look about for means of disposing of it. There are but two forms into which a surplus of apples can be converted. One is cider, to be disposed of as such, or converted into vinegar. The other is, dried apples. There are now offered a number of driers and evaporators, which, on a small scale, turn out as good an article as do the larger ones. We have no doubt, that in some peach localities, it may pay for a capitalist to put up a large evaporator. We advise all who are likely to have much fruit to dispose of by drying or evaporating, to investigate the matter, and send to the different advertisers for their circulars. An important point connected with the drying or the evaporating of fruit is, the implements used in preparing the fruit for the drier. Apples, for example, must be pared, sliced, cored, etc., before they are ready to go into the drier. Some of these implements work with wonderful rapidity and perfection. The makers of some of the driers supply all the needed accessories. Not only fruit can be profitably dried, but vegetables may also be so treated, and these are improved by being prepared in the rapid-working evaporators. Such vegetables as sweet corn, and Lima beans, will be especially welcome on the table next winter.

Plants as Air Purifiers.

Dr. Anders has just concluded some valuable experiments with house plants. He inclosed a dozen potted flowering plants in an air-tight glass case, and placed them in the bay window of a sitting room facing the east. Ozone test papers were hung in the case before it was closed. Observations were made for four hours daily during eighteen days, with results showing the presence of ozone in the air of the case. A second series of tests was made with odorous flowering plants—carnations, heliotropes, etc,, with stronger indications of ozone. A third series included "foliage plants"—ferns, draeænas, etc.—with less positive results. Further experiments with plants in flower were made with the case in the out-door air. In these it was found that negative results came on rainy days, thus indicating that bright sunshine is needed to develop ozone. The experiments showed, that the floral organs are specially delegated to the important function of developing ozone. This peculiarly active form of oxygen is produced during the formation of the seed, in connection with the phosphorous compounds there accumulated. Flowers of various kinds have been known to exhibit phosphorescent light in warm evenings.

Ozone is a most wholesome element in the atmosphere, keeping or tending to keep it from becoming polluted with disease germs. It oxidizes, or burns up, noxious accumulations. Plants in flower are therefore to be placed in the front rank as hygienic agents. Ozone is of special value in living rooms, when the air, according to the best authorities, is usually foul. A bay window, filled with flowering plants, will doubtless furnish ozone enough to have a decidedly healthful effect upon the air of the room. It is gratifying to have farther proof that the old-time prejudice against house-plants is ill-founded; instead of contaminating the air of the room, and endangering the health of the inmates, they render it purer.

The California White Cedar.

The term White Cedar, is applied in different parts of the country to three very unlike trees, indeed, they belong to different genera. The tree properly called White Cedar, is *Cupressus thyoides*,



CALIFORNIA WHITE CEDAR.

and more abundant in the Atlantic States than in the interior. Towards the great lakes, the tree generally known as Arbor Vitæ (*Thuja occidentalis*), in more eastern localities is generally called White Cedar. In the mountains of California, a third tree is known by the same name. This is *Libocedrus de-*

currens, our only representative of a genus elsewhere found in Chili and New Zealand. This tree does not occur at a lower elevation than four thousand feet, and above that hight it has a wide range throughout the Sierra Nevada and the mountains of Southern Oregon. The hight of the tree is from one hundred and twenty to two hundred feet, with a trunk naked for eighty to one hundred feet, and seven to eight feet in diameter. The foliage, as seen by the engraving, bears a resemblance to that of the Arbor Vitæ. The timber of this tree is among the most valuable, at least to farmers, of the many fine kinds of California. It is light, yellowish in color, and of great durability, being in this respect rated above that of the Redwood. For rails, and fencing generally, it is much preferred by the farmers to whom it is accessible, to any other timber. Like many other gigantic forest trees, this, when young, and grown without the crowding that it receives in the forest, is a highly ornamental tree, assuming a compact, pleasing form, and especially attractive on account of the deep, rich, glossy-green of its foliage. This White Cedar has been tried in a number of localities in the Eastern States, and while it does not appear to be sufficiently hardy to be recommended for general planting north of Virginia, yet, with the care given it at Rochester, New York, it succeeds in that rather severe climate. Probably, like many other evergreens, it becomes more robust with age, and if afforded slight protection while young, will soon be able to do without it. The trouble with this, and similar trees is, they continue to grow so late in the season, that their wood does not have time to ripen sufficiently to endure the winter. It is all important that such trees have a light and well-drained soil, and one that is not especially rich.



NO MORE PIC-NICS.

Drawn and Engraved for the American Agriculturist.

Temperatures—Practical Hints—Thermometers.

I. H. MAYER, M.D.

There should be a good thermometer in every house. A very little attention to what it reveals to us will be of much practical use to farmers, and indeed to all others. Our feelings are affected by so many internal and external conditions that they are no certain indication of the actual heat or cold. The right temperature of rooms in winter is important. For strong men, properly fed and clothed, this is not so material. To them forty-eight to sixty degrees is felt as comfortable. Young children and aged persons require much artificial warmth. The newly-born infant requires sixty-five to seventy-five degrees, often more. Some old people are benefited by a still higher temperature. The air in a sick room or a hospital should, as a rule, be sixty degrees. Fever cases sometimes do best in forty to fifty degrees.

The importance of the temperature of the water in bathing can scarcely be overestimated. Both vapor and hot water baths above ninety-seven degrees are decidedly stimulant. The warm bath, between ninety-seven and eighty-five degrees, is soothing, and beginning with ninety-seven degrees is suited for infants and of much use in securing a robust growth and laying the foundation for a "good constitution." The tepid bath, between sixty-five and eighty-five degrees, is useful for cleanliness and to promote insensible perspiration—to keep the pores open. The cold bath, between thirty-two and sixty-five degrees, acts primarily as a stimulant, next as a tonic, and finally as a sedative; though few, except strong persons with healthy lungs should indulge in this luxury. The natural temperature of man in health is ninety-eight to one hundred degrees (98.4 degrees) and exposing the whole body or part of it to water thirty-five to sixty-six degrees colder is unsafe. Well or spring water is usually from forty to sixty degrees, and water to be used for bathing if above sixty degrees or below forty degrees should be avoided by the greater part of mankind.

Digestion takes place at ninety-eight to one hundred degrees in man, and in case of low vitality a drink of milk at one hundred degrees or higher is most grateful to the stomach. Fresh water is usually a tonic to the stomach far preferable to any "stomach bitters" or anything else. Ice water, in large or even small quantities, taken by those unaccustomed to its use, paralyzes the functions of the stomach and produces serious results. In experiments in ovens Blagden and Fordyce bore two hundred and sixty degrees, while their own temperature rose only two and a half degrees, but the air was dry and the heat of their bodies was kept down by free perspiration. Higher heat may be endured without discomfort in a dry atmosphere than in districts abounding in moisture. Sixty degrees below zero and even lower has been endured without fatal results. Air at thirty-two degrees contains about ten per cent. more oxygen than at eighty degrees. Hence the vitalizing influence of cold, bracing air, and the rapid breathing or panting of animals on a hot day.

Over one hundred and ten degrees heat of the body indicates the extremest danger in disease, and when the blood of the vertebrate animals exceeds one hundred and thirteen degrees the result is necessarily fatal, as it coagulates one of the albuminous bodies in the muscles. Nearly all, perhaps all infectious material, if thoroughly exposed to two hundred and twelve degrees (boiling heat) is destroyed.

The temperature of a toad and of many varieties of fishes is about fifty-one degrees, and in cold-blooded animals generally it is about the same. The ape has a temperature of scarcely ninety-six degrees; the whale and seal, one hundred and four degrees; and the squirrel, one of the warmest mammals, one hundred and five degrees. That of the swallow and heron rises above one hundred and eleven; of the hen scarcely one hundred and six degrees, which the incubator must imitate; one hundred and seven is fatal to the chick.

During the flowering process plants evolve unusual heat—in some only a few degrees, while in blossoms of *Arum cordifolium* it rises to one hundred and eleven and even one hundred and twenty-one degrees, while the external air is only sixty-six degrees. Growing plants are slightly warmer than the surrounding atmosphere.

A thermometer is useful in many ways. Milk yields best results if kept at or slightly above forty degrees—the same as good spring water. Cream is most readily churned at from fifty-seven to sixty degrees. Curd cheese is best produced by exposing thick milk at eighty-five degrees. Sweet potatoes keep best if never exposed below forty degrees; while fruit of all kinds requires a room under thirty-five degrees. A cellar for bees should be forty degrees; if well ventilated it may be fifty. A wine cellar about sixty degrees is best, both for fermenting and keeping. Grapes are most successfully propagated from cuttings, single eyes, etc., in a temperature of eighty degrees. In propagating houses for soft wood of various vines and plants the bottom heat should be from sixty-five to seventy degrees, with the air about fifteen degrees cooler than the sand—hot-beds the same or ten degrees higher. Many other uses will be found for the thermometer besides telling when it is "ninety-eight degrees in the shade" in summer or below zero in winter.

A Farmer's Work-bench.

A cheap and convenient work-bench is shown in the engravings. The legs are of two by six-inch scantling, thirty-four inches long, and the top is made of a two-inch plank in front, and inch boards at the back. Good pine makes a bench that will last many years, and is easy to handle if necessary to use it outside of the shop. In the front are strips, inch or inch-and-a-quarter thick, six inches wide, with the edge bevelled from centre both ways, as shown in figure 1, *a*, *a*, the slide, *s*, is fitted to move between these strips.

A bench eight feet long, two and-a-half wide, and three feet high, is in good proportion. A wide board coming half way or more down the front of the bench is sometimes used, but by making the bench as shown, you can nail in a bottom to the lower strips, and have all the space under the bench for storing tools, boxes, etc. The vise, *v*, should be of hard-wood, about two inches thick, and eight inches wide at the top. The screw is placed

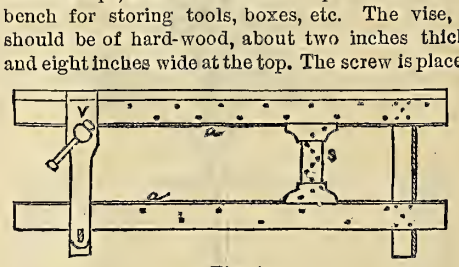


Fig. 1.

as shown in figure 2, and the piece at the bottom is fitted into a mortise and firmly fastened. Cut the four end pieces twenty-seven inches long, and nail them firmly to the legs. Let the two-inch front plank project a little beyond the end pieces, and level the top so that it will be flat and smooth. Set in all the nail-heads an eighth of an inch, that they may not dull any tools. If any of the patent adjustable "dogs" are used, fit them into the plank about ten inches from the end, and six inches from the front edge. A large three-inch screw will answer, but is less convenient. A case of drawers may be made to set in under the bench for holding small tools, brads, screws, rivets, etc.

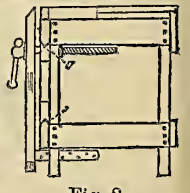


Fig. 2.

HOME-MADE ESSENCE OF CELERY.—Soak half an ounce of celery seed in a gill of pure brandy for two weeks. A few drops will give a pleasant flavor to a tureen full of soup, or the stuffing for a fowl.

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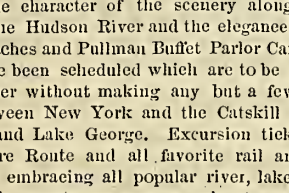
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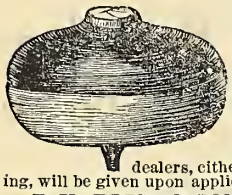
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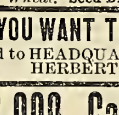
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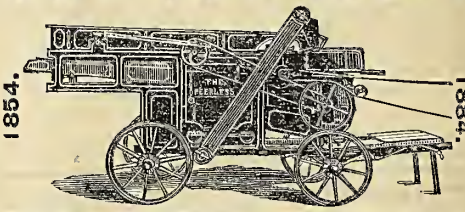
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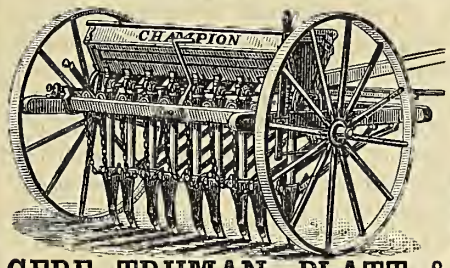
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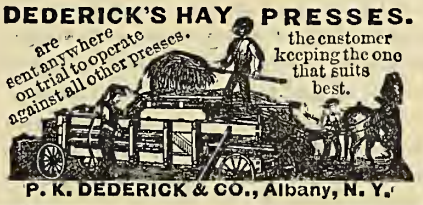
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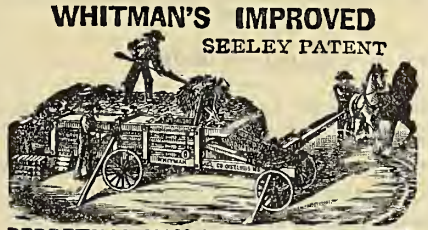


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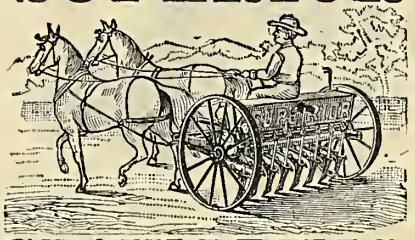
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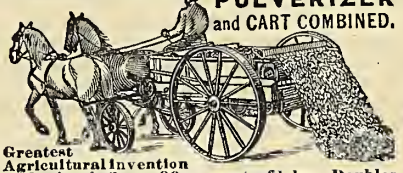
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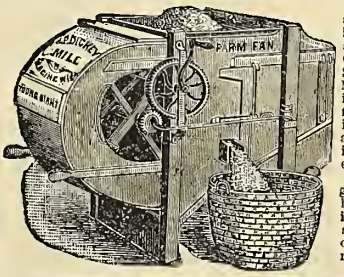
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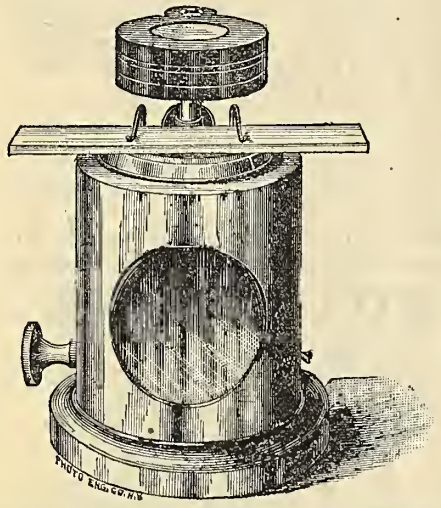
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Mr. Henry F. Moore, F. C. S., the agricultural editor of the "Times," in a congratulatory communication to the Publishers of the *American Agriculturist*, says: "It is a capital paper."

Do Not Fail

to immediately inform us if your paper does not promptly reach you. Postmasters generally through the country are friends of the *American Agriculturist*, and will be glad to aid you and us is discovering the cause of any miscarriage, whereby your copy fails to reach you on time. The *American Agriculturist* is now mailed as regularly as clock work to all subscribers.

Kind Words.

At no time has the *American Agriculturist* received so many flattering notices from the press and from its subscribers, as now. We thank our cotemporaries for their kind words, and our subscribers and friends for their appreciative letters. We have simply to say to one and all, that we shall continue to improve the paper with every issue. The May, June, July and August issues are an earnest of what it is to be in the future. To the old staff of editors and writers who have been with us so many years, we are making accessions, so that the *American Agriculturist* is now stronger editorially than at any former period of its existence. Mr. Allen, the founder of the paper, and for so many years its publisher, may well feel a pride in the success, which this journal, started over 40 years ago, has now attained.

Hon. W. I. Chamberlain, Secretary of the Ohio State Board of Agriculture, writes: "I am glad to learn that Mr. Harris has begun to write for the *American Agriculturist*. I shall begin to take the paper again at once, as will very many others."

Illustrations.

Will contributors invariably bear in mind our request to forward plain and simple sketches and designs with their manuscript. Our artists will make the engravings. The June, July and the current numbers, indicate what the illustrated features of the *American Agriculturist* will be hereafter.

To-Day.

Now is the time to subscribe for the *American Agriculturist*.

You may be busy on the farm, in the garden, or in the household, during July, August, and September.

But those are the months when you may require hints and suggestions, more than ever.

You will find them in the *American Agriculturist*.

Then the beautiful pictures in each number will interest you when you come in tired from a hard day's work.

They will both instruct and entertain your wife and little ones.

We propose to make the department for the children more interesting than ever. We want every boy and girl in the land, who reads the *American Agriculturist*, to look forward anxiously every month for its appearance.

And then, when you have read all the interesting things in the Children's Department, we want you to suggest to us anything more that you would like to see there.

Several juvenile subscribers have told us recently that they would like to have the Puzzles and Charades which were formerly in this department.

Well—we are going to oblige you in this respect, and have some more of them from time to time, in the future.

Old Subscribers.

We are now classifying by States, counties and towns, all the vast army of subscribers to the *American Agriculturist* during the past ten years. We expect that every one now living, who is not now a subscriber, *will hear from us* soon. To this end, will every subscriber within ten years, who is not now a subscriber, and who has within that period changed his post office address, immediately notify us of the fact. The names will then be properly classified under the right Post Offices.

Westward, Ho!

Very many of our readers are writing, thanking us for what they esteem as valuable information, regarding the Far-West.

One of our editors will make his extensive annual tour through the Western States and Territories, in quest of information for those of our readers who are seeking Western Homes, and wish to know the best locality in which to settle.

During the last eigth months we have given a good deal of information regarding Dakota. We propose to give much more.

We invite our readers in that Territory, also in Minnesota, in Iowa, Kansas, and Nebraska, and other Western States and Territories, to send us any information about their localities, of interest. Let it be very brief, however.

Tell us what land is worth per acre in your region, and what the inducements are for settlers. There is a good deal of Government land in some regions of the Far-West, which has not yet been settled. But such portions are growing rapidly in population; and those who wish to obtain a farm of Uncle Sam should not wait too long. The first to come are the best served.

If R. D. Buchanan, formerly of Saginaw, Mich., and for many years a subscriber of the *American Agriculturist*, will send his present address to us, he will confer a great favor upon his devoted daughter, Mrs. Alice Webster.



The Free Recipe Dodge Modified.

Inmann and a number of his followers advertised that they would send a recipe free. A "Medical Institute" in Boston simplifies matters by publishing the recipe in its advertisement. In this, as in those of the other style, care is taken to have in the prescription, or recipe, one or more articles not to be had at the drug stores, at least not by the names given. The "Institute," like all the others, proposes to send the stuff all put up for a consideration. It is the same old story, but a little differently told.

"A Disgrace to the Town."

The people of St. Stephen, in Mass Meeting assembled, have resolved that the Royal New Brunswick Lottery, so often exposed in these humbug columns, is a disgrace to their village, and have applied "to the Government of Canada to take steps to remove the lottery swindle existing in this town." We continue to receive from our subscribers the circulars of these swindlers that are still being scattered broadcast over the United States. After the sweeping exposures made from time to time, surely no reader of the *American Agriculturist* ought to be imposed upon by these scoundrels.

Various Land Companies

in Kansas, Texas, and other States in the far-West, offer lands to settlers on tempting terms. Some of these companies may be all right; others are known to be all wrong. Those who are tempted by these circulars, need not be in a hurry to invest. The land—if they have any—will remain there. Take time, and inquire of the Post-master nearest the alleged locality, as to the Company and the character of the land it offers. Some lands are not worth taking, even without cost. Postmasters have formerly done good service in exposing fraudulent land schemes.

The Spotted Pony Ranch.

The man at Leon Springs, Texas, still sends out his letters, in which he refuses to answer questions about his own business for less than a dollar for a small printed slip. Judging from the proprietor's own circulars, we would not advise any one to go to this ranch to learn the business of ranchero. He signs his name as B. H. Van Raub, and is said to be the same as Byron H. Robb, formerly concerned in various enterprises in Cincinnati, Ohio. Don Carlos is said to be another name for the same person.

No "Lock of Hair" Required.

We have known parties to advertise that they could treat diseases if only a lock of the patient's hair were sent to them. There is a quack in Ann Arbor, Mich., Kellogg by name, who does not even need the lock of hair. He can tell what is the matter just as well, if half a dollar is sent. If full name, age, place of residence, with fifty cents are enclosed in a letter, the sender "will receive by return mail a plainly written statement of his disease, with cost of treatment." The chap says, "It is not necessary that the patient be present to receive treatment," very likely not, we have no doubt that the farther away he is from this "Doctor," the better will it be for the patient.

Brahmo Yan.

Inquiries are still sent us concerning this alleged cure for deafness. One subscriber, Livingston County, N. Y., asks for our opinion of it. Our opinion has already been freely given, and to new subscribers who have not seen it, we would say, that we regard it as most heartless to offer to those afflicted with deafness, this stuff as a "specific." Admitting (which we do not) that this "Brahmo Yan" has any remedial powers in deafness, the affliction is due to so many causes, that any one remedy can touch but a small share of the curable cases. In some forms of deafness, relief by human aid is impossible, yet the sellers of this stuff make no distinction between curable and the incurable deafness. They wish to sell their "Brahmo Yan."

Indignant at the Implication.

Mr. T. W. B., Alexandria, Va., would like to know what sort of people the proprietors of "Churchill's Remedies" are, as they seem to know more about his afflictions than he does himself. He writes us that they write him, "as you have not accepted our offer, etc.," Mr. B. writes us that this is the first he has heard of any "offer," and that he did not before know that he was afflicted with any disease. What right have these venders of nostrums to insult a stranger by implying that he is in need of their "Restorative" stuff? Have they any right to assume that one has led an improper life, by proposing with their miserable stuff to cure him of diseases, which he does not know even by name? Has one who has lived a quiet and cleanly life no rights which venders of quack medicines are bound to respect?

Counting Chickens Before They are Hatched.

Some two years ago we exposed the claims of one Bain, of Ohio, who represented himself to be the "North American Poultry Association." This Bain would teach how to make a "Common Sense Incubator" for $2, and would sell a Havana Recipe for preserving eggs, for some other sum. No one, as we showed at the time, could make a useful incubator from the directions, and the "Havana Recipe" was the old lime-water method, with some utterly useless articles added. During the past few months letters have appeared in papers in various parts of the country, purporting to be written by one L. L. Johnson, Fort Scott, Kans. These letters give most glowing accounts of his success with a "Common Sense Incubator," taking care to tell where to send $2, for directions for making it. This Johnson pursued his "regular business," whatever that may have been, and claimed that he could easily make $2,500 yearly from his incubator. As this was quite too good to be true, cautious persons wrote to said Johnson, asking for more definite particulars. The Postmaster at Fort Scott states that, like Sairy Gamp's Mrs. Harris, "There aint no sich pusson," and moreover, that "there never has been any such person as L. L. Johnson in this city." But Bain and his incubator have been thoroughly and gratuitously advertised. Who wrote the letter is not known, but there is no harm in guessing at its authorship.

Caught at Last! One Who Offers Bogus Money.

Circulars are continually sent us by our subscribers, issued by those who apparently offer counterfeit money. This is an old, one of the very oldest traps, but it can only catch those who are dishonestly inclined. An honest man cannot be tempted to touch counterfeit greenbacks, no matter how cheap they may be offered. Having this view of the matter, we for some time dropped this from our list of humbugs, feeling that, should any one get caught in the trap, the verdict of all honest men would be:

"SERVED HIM RIGHT."

We refer to the subject now to show how one of the rascals has been caught, and how our readers who receive similar propositions can aid in bringing the senders of them to justice. Mr. S. Schwartzchelder, Waterbury, Conn., received from one J. C. Stevens, of New York, a circular in which he offered in the usual tempting manner, his "greenleaf articles." Mr. Schwartzchelder consulted the Chief of Police of Waterbury, who corresponded with Mr. Anthony Comstock, inspector of the U. S. Post Office Department. Mr. C. advised that the correspondence with Stevens be continued, and at length some small real bank notes were sent as specimens of the "greenleaf articles" Mr. S. would furnish. The correspondence resulted in an appointment to meet Stevens at the Putnam House, in New York City. At the appointed time Stevens was at the rendezvous to conclude the sale, Schwartzchelder was on hand to exchange a little good money for much not so good. That each man might make sure of the other, the pass-words agreed upon had been exchanged, and all appeared lovely. Schwartzchelder was about to take the "greenleaf articles," but just then Inspector Comstock took Stevens, which essentially changed the aspect of affairs. Stevens was taken before U. S. Commissioner Shields, and having no $1,000 in good greenbacks at hand—the amount of bail—was sent to jail to await trial upon the charge of violating the law of Congress by using the U. S. Mails for fraudulent purposes.

Offering Bribes.—What Anthony Comstock says.

Louisiana and Kentucky still tolerate lotteries. These States not only allow tickets to be sold, but by granting charters so far give them legal sanction. Were the evil influences of these lotteries confined to the States which thus countenance them, they would be less objectionable. But the managers of these lotteries appear to think that a charter from the Legislature of their own State gives them the right to carry on their business in other States. Until quite recently, their flaring advertisements appeared in the few New York City papers that would publish them, and their offices for the sale of tickets were open upon the principal streets of the city.

THE THOUSANDS OF DOLLARS

daily taken in by these ticket-offices was not known, until the "Society for the Suppression of Vice" raided its principal office on Broadway, and seized its books, papers, and tickets. It was then found that the daily sale of tickets for twenty days previous to this seizure, reached the astonishing amount of $5,176 (five thousand one hundred and seventy-six dollars), each day! Besides this, the office received nearly two thousand letters daily. Who contributed this immense daily income to this Company? The "short accounts" of various bank and other officers, and the defalcations of trusted clerks in business houses, are a sufficient answer. It is a well established fact that the annual income of this Louisiana Lottery has been four millions of dollars! What wonder that it can pay big bonuses? The above mentioned breaking up of its principal New York office, was a severe blow to the Lottery Company. Its managers were sensible enough to know that nothing could be gained by fighting the Society which authorized it—What was its next move? A person who claimed to represent the Lottery Company, Mr. Anthony Comstock states to us, appeared at the office of the Society for the Suppression of Vice, and proposed to pay into its treasury annually the sum of

$25,000 IF ITS SECRETARY WOULD KEEP STILL.

Though the alleged bribe was not taken, the incident shows what "sinews of war" these people can control. But the others having right and law on their side, won the fight.

Some New and Practical Books.

American Cattle, by Lewis F. Allen. A new and revised edition. Orange Judd Company, New York. When this work first appeared as a treatise upon cattle in America, by an American author, who could speak from his own wide experience, it was at once accepted as a standard. There have since been works upon particular breeds, but none comprising all breeds, and treating of them in an exhaustive manner. In subsequent editions, its author, still active and enthusiastic in all that relates to improved agriculture, has kept his work abreast of the time. In the present revision, he has added whatever seemed necessary to maintain the work in the position accorded to it when it first appeared—the standard work upon American Cattle—or more concisely, Cattle in America. Price, post-paid, $2.50.

Ladies' Dogs as Companions, also a Guide to their Management in Health and Disease, with many stories, humerous and pathetic, from life. By. Dr. Gordon Stables, R. N. Dr. Stables, in his larger work, "Our Friend the Dog," noticed last month, has shown that he possesses two important qualifications as an author. A competent knowledge of his subject, and a most happy style in imparting that knowledge to others. The same characteristics are evident in the present work, which will prove most useful to the increasing number of ladies who choose dogs for their pets, and who are, from a mistaken sense of kindness, apt to spoil them by too much petting and coddling. The same vein of common sense that marks the larger work, runs through the present one, making it a useful guide. Fully illustrated. Supplied by Orange Judd Company. Price, post-paid, $1.50.

Quinby's New Bee-Keeping.—A new edition by its author, L. C. Root: Orange Judd Company, New York. The title of Mr. Quinby's first work was: "The Mysteries of Bee-Keeping Explained." In the editions which followed, this was simplified to "Quinby's New Bee-Keeping." Each successive edition embodied all the improvements that had been made since the previous one. Soon after the lamented death of Mr. Quinby, his business associate and relative, Mr. L. C. Root, prepared what was, practically, a new work, but with a modesty as rare as it is commendable, continued to call it "Quinby's New Bee-Keeping." In the belief that the great services of Mr. Quinby in simplifying the methods of the Apiary, and in popularizing improved bee-culture, entitled him to be thus commemorated, the title has been continued in subsequent editions. In the present, as in former editions, Mr. Root has added much new matter, and wherever the text required them, new illustrations have been introduced. In its present form it is a standard guide to Bee-keeping as now practised by American Apiarians, whose methods are far in advance of those followed in Europe. Abundantly illustrated. In press. Price, post-paid, $1.50.

Goats in California. — The Angora goat was introdnced into California in 1848, and has been bred quite largely upon the common goat. An establishment for making gloves, robes, etc., uses thirty thousand goat skins per year. Other goat raising States of less importance are the Carolinas, Georgia, Kentucky, Tennessee, Texas, and Nevada.

Some Beans. — The United States and Territories produce annually over three million bnsbels of beans. More than one-third of these are grown in New York. The States next in order are California, Maine, Michigan, Missouri, and Wisconsin. Massachusetts with her famous "Boston baked beans" grows only about twenty-two thousand bushels.

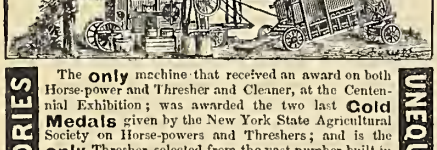
Where to Get Hungarian Grass Seed.—Whenever we recommend a particular crop, we are sure to receive numerous inquiries as to where the seed can be procured. We wish our friends to understand, that, unless we state that a seed or a plant is only to be had of a particular dealer, that seed or that plant is to be procured of all the principal seedsmen and nurserymen in the country. The seed of Hungarian grass, as well as that of all leading grasses, is kept by the principal seedsmen. It is safe to send an order for seeds of any plant in general cultivation to any regular seedsman.

"Can You Tell Me Where to Get?" Many of our letters begin thus, and then follows the name of some seed. The postal card now before us asks us the question as to Rye Grass, and expects us to answer in the *American Agriculturist*, with the price. Our correspondents should bear in mind this fact: Seedsmen do business to make money, and if they do not have on hand an article that may be ordered, they will procure it, and thus retain a customer. There are numerous seedsmen among our advertisers, and it would not be treating all the others right, to say that any one of the number has a kind of seed that may be obtained from all the others.

Pioneer's Plan for a Rotation of Crops.—It takes from ten to fifteen years in a newly settled region for any rotation of crops to be established. The character of the soil, the wants of the settlers and the market, all determine what crops are to be grown. The farmer will naturally fall into some system of succession for his crops, but the more thought he gives to this subject at the outset, the better will be his future. We do not expect the exact methods of the English farmer on the newly broken prairie. This will come in time, when the virgin fertility is exhausted, and each farm has become a permanent, though small factor, in the national life. We will then need a rigid rotation, and it is well for every farmer, however new his land, to think of what is best for the future, in laying plans for the present. What will your own rotation be? Grass, corn, oats, wheat—does this arrangement best suit your conditions?

Would You Advise the Use of Incubators?—Whiteville Wine Company, Columbus County, N. C. The answer to this question will depend upon circumstances. If it is desired to produce a few dozen of chicks yearly, in order to keep up the usual farm flock, it is better to do it with the original incubator, the hen. If one is to make a business of poultry raising, whether the product is to be marketed as poultry or eggs, and chickens are wanted by hundreds, then it will pay to have an incubator—provided it can have constant and intelligent attention. Among the many incubators advertised, we have tried but one, and cannot say which is the best. Our correspondent will do well to send to the various makers for their descriptive circulars and study them carefully, before deciding which to buy. Many have an electric or other apparatus for the regulation of the heat, others have the heat regulated by the attendant.

FEARLESS.



VICTORIES

The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers; and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free. Address

MINARD HARDER, Cobleskill, Schoharie Co., N. Y.

UNEQUALED.

SIR ROBERT CHRISTISON,

BARONET, M.D., D.C.L., LL.D., F.R.S., Physician to Her Majesty the Queen, President Royal British Association, Professor at the University of Edinburgh, etc., says:

"The properties of this wonderful plant (the Coca) are the most remarkable of any known to the medical world. From repeated personal trials, I am convinced that its use is highly beneficial and tonic."

PROFESSOR DUNCAN CAMPBELL, M. D., LL. D., F. R. S., President Royal College of Physicians and Surgeons, Member General Council University of Edinburgh, etc., etc., says: "Liebig Co.'s Coca Beef Tonic has more than realized my expectations."

PROFESSOR JOHN M. CARNOCHAN, M. D., Surgeon-in-Chief New York State Hospitals, Professor Surgery New York Medical College, ex-Health Officer, Port of New York, etc., says: "My patients derived marked and decided benefit from the Liebig Co.'s Coca Beef Tonic."

PROFESSOR F. W. HUNT, M. D., LL. D., Honorary Member Imperial Medical Society St. Petersburg, Russia, Professor of Practice of Medicine, etc., etc., says: "Liebig Co.'s Coca Beef Tonic is far superior to the fashionable and illusive preparation of beef, wine and iron."

PROFESSOR H. GOULLON, M. D., LL. D., Physician to the Grand Duke of Saxony, Knight of the Iron Cross, etc., etc., says: "It gives more tonic than anything I have ever prescribed."

It is invaluable in Dyspepsia, Biliousness, and Liver Affections.

PROFESSOR C. A. BRYCE, M. D., LL. D., editor *Southern Clinic*, says: "Really a wonderful reconstructive agent, building up the system and supplying lost nervous energy. For broken-down constitutions, it is *the* agent."

PROFESSOR H. R. BENNETT, of Fitchburg, President Massachusetts Surgical Society, says: "The best tonic to build up a broken-down constitution from long-standing womb disease is Liebig Co.'s Coca Beef Tonic." It is invaluable in all forms of debility, nervous affections, nervous and sick headaches, and catarrh.

For indorsements and opinions of hundreds of the most distinguished physicians, irrespective of school, see our circulars.

Liebig Co.'s Coca Beef Tonic is also valuable in Malaria, Fever and Ague, Chronic Coughs, Kidney Affections, Asthma, Female Irregularity and Sufferings, Palpitation and Weakness of the Heart, Scrofulous Eruptions, Infirmities of Old Age, etc.

The *American Homœopathic Observer* says: "Liebig Co.'s Coca Beef Tonic certainly merits all the praise it is receiving."

The St. Louis *Clinical Review* says: "We desire to call the attention of the profession to the reliability of the preparations manufactured by the Liebig Company, and to the high character of the indorsements accorded to this celebrated firm by leading physicians and medical journals of all schools."

The *American Homœopathic Observer* says: "The Liebig Co.'s preparations should not be confounded with any patent nostrums. They are legitimate pharmaceutical products, and worthy of the recommendations bestowed upon them by both homœopathic and allopathic journals."

PROFESSOR J. C. LEHARDY, M. D., President State Medical Society of Georgia, Member Athenee Royal de Bruxelles, etc., etc., says: "The results obtained by me from its use in my practice are indeed flattering."

It embodies the nutritive elements of the muscular fibre, blood, bone and brain of carefully selected healthy bullocks, dissolved in a guaranteed quality of sherry, and combined with the Coca (which is recognized as the most powerful tonic now known) and other valuable invigorating ingredients. It will reconstruct the most shattered and enfeebled, reinvigorate the aged and infirm, and infuse new vitality into sickly children and infants.

PROFESSOR WILLIAM C. RICHARDSON, M. D., Dean of St. Louis, Mo., Clinic of Midwifery and Diseases of Women and Children, says: "To children with marasmus I have given it with decided benefit. It is a remedy of great utility in Dyspepsia. It is also a most powerful and agreeable stimulant to the brain and nervous system, and it is especially useful to counteract fatigue of mind and body."

DR. TUTHILL MASSEY, M. D., L. R. C. P., M. B. H. S., of Manchester, England, says: "The effect is something wonderful. From being depressed and very low spirited, easily tired, I can now walk any length of time without feeling fatigue. Before taking the Coca Beef Tonic my nerves seemed so unstrung that when I read a pathetic tale I could not refrain from becoming very much affected, although I tried hard to overcome the absurd feeling. Now I am myself again.

TO THE LIEBIG COMPANY: DEDHAM, ME.

Gentlemen—Your agent left me a bottle of your Coca Beef Tonic. I took it myself, as I had been sick a number of months with a lung affection, and was not able to practice. It helped me very much. So much so that I am now about as well as usual. I have since given it to a number of patients, and it has benefited every case. I am indeed most thankful that it came to my hands. I had tried different preparations of Coca before, but had no effects from them.

H. S. PHENIX, M. D.

PROFESSOR C. H. WILKINSON, Editor *Medical and Surgical Record*, says: "The Coca Beef Tonic of the Liebig Company, combined as it is with Coca, quinine and iron, forms a most valuable adjunct to the practice of medicine. From the experience we have had with it, we are forced to speak in its favor and to recommend its use. Beef, iron and quinine, cannot be surpassed by any other three ingredients in or out of the dispensatory for invigorating an enfeebled system, and when such remedies can be obtained combined from so reliable a house as Liebig's, it behooves the profession to patronize the same to the fullest extent."

From an article on the Coca by W. S. Searle, A. M., M. D., of Brooklyn, Fellow of Medico-Chirurgical Society of New York, etc.:

It is a useful tonic in nervous prostration, hysteria and melancholy. In sustaining nervous force it is superior to all known agents. I have advised its use to a large number and variety of persons for various conditions, and the great majority have found benefit from its employment. To a sufferer from nervous dyspepsia, a lady seventy-three years of age, who had been reduced to a diet of lightly cooked meal and bread, and who for three years had not had a movement of the bowels without the aid of enemas, I prescribed it. Within three days she was able to return to ordinary food, and though two years have passed, she has not failed to have a regular and normal evacuation daily. A lady who had for years suffered from nervous asthma, and who had been compelled to go up stairs slowly and with frequent rests, found great relief from the very first dose. A broker who had been subjected to excessive nervous strain, and was in consequence unable to sleep or eat well, was becoming weak and emaciated. He greatly feared he would be obliged to relinquish business for a period of entire rest. All his symptoms were immediately cured, and he went on with his affairs as usual. A lady, aged fifty-five, has diabetes. Since taking Coca with her meals she has improved wonderfully, being almost entirely relieved of her former "sinking spells," thirst and constipation. A lady suffered for thirteen years with severe nervous headaches. They at first recurred every three weeks, and finally every two days. She describes them as so violent that she would rather die than live. Three weeks after beginning the Coca she reports: "I have had but one slight attack, and I am so much stronger and better that I feel sure I shall be cured." Many instances of nervous headache, neurasthena and neuralgia have been reported to me as cured by the Coca when all the usual narcotics, tonics and anodynes have failed to afford relief.

132 HENRY STREET, BROOKLYN.

TO THE LIEBIG COMPANY:
Your preparation of Coca is the best I have ever seen.
W. S. SEARLE, M. D.

WHAT IS COCA?

The first reply is that IT IS NOT COCOA.

COMMODORE GIBBON (United States Exploring Expedition of the Amazon) says: "The Coca has properties so marvellous that it enables the Indians, without any other nourishment the while, to perform forced marches of five or six days. It is so bracing, stimulant and tonic, that by the use of it alone they will perform journeys of 300 miles without appearing in the least fatigued."

PROFESSOR J. J. VAN TSHUDI ("Travels in Peru") says: "Setting aside all extravagant and visionary notices, I am clearly of the opinion that the use of Coca is very conducive to health and longevity. In support of this conclusion, I may refer to the numerous examples of longevity among Indians, who, from boyhood, have been in the habit of masticating Coca three times a day. Cases are not unfrequent of Indians attaining the great age of 130 years, and these men, at the ordinary rate of consumption, must, in the course of their lives, have chewed not less than 2,700 pounds of the leaf, and retained the most perfect health and vigor."

I tried Liebig Co.'s Coca Beef Tonic in a number of cases of chronic dyspepsia where the assimilation of food was very defective and there was steady loss of weight. The results obtained in two weeks were, indeed, flattering. One patient gained five pounds, another three pounds, and so on.

J. C. LEHARDY, M. D., Savannah,
President Med. Society of Georgia, etc., etc.

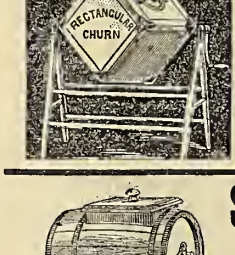
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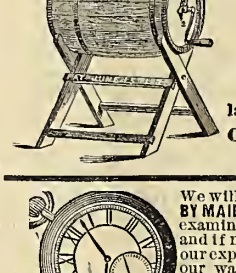
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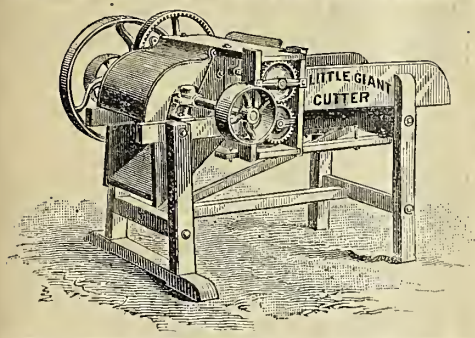
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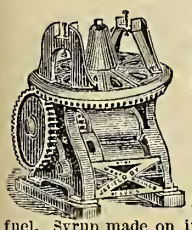
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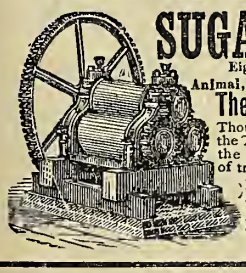
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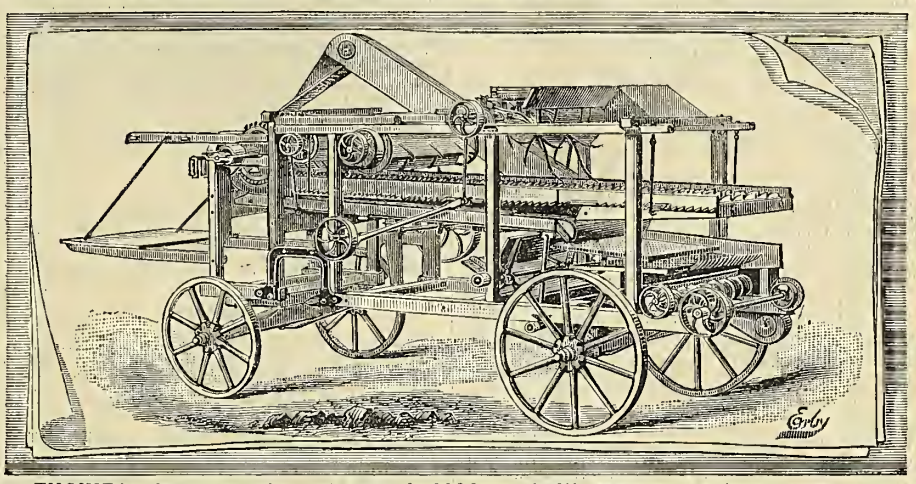
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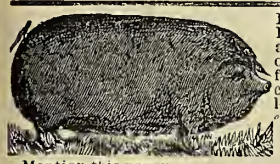
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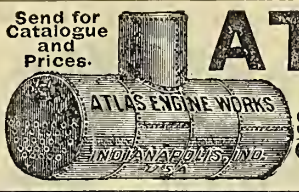


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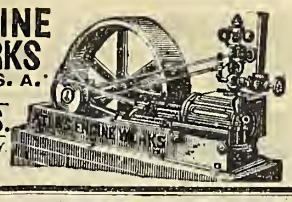
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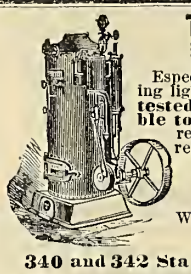
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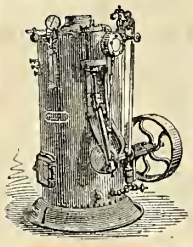
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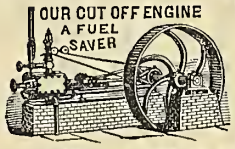
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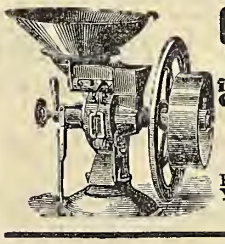
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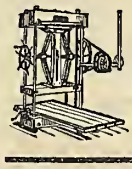
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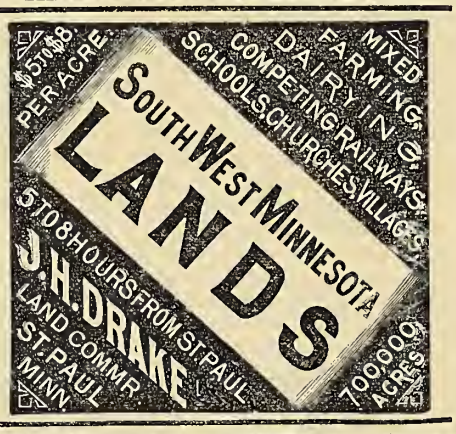
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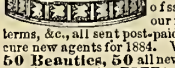


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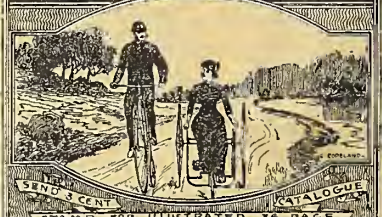
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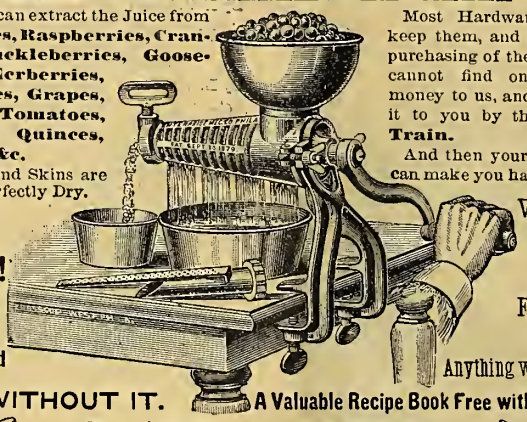
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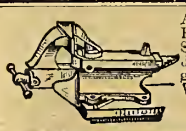
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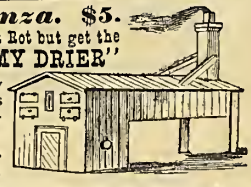
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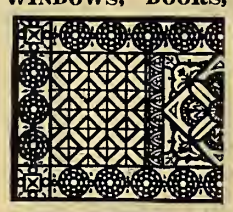
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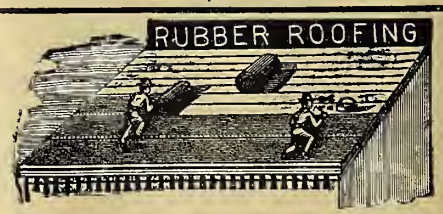
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Contents of this Number.

Above-Ground Cellar of Brick 2 *Illustrations*..375
Among the Farmers.....374
Animal Ailments.....370
Apples for Exportation—Small Barrels.....366
Ashes, Value of.....371
Barrow, A Barrel. *Illustrated*..374
Basket, Our.....370
Baskets, Easily Made.....4 *Illustrations*..378
Bee Notes for September..... *Illustrated* .364
Bees, Leaf Cutter..... *Illustrated*..379
Bees, Where the Busiest.....359
Boys' and Girls' Columns:
At the Ferry..... *Illustrated*..382
Jack, the Bridge Mouse.....382
The Doctor's Talks 2 *Illustrations*..383
Snake Charming..... *Illustrated*..384
Bulbs, Plant them Early.....377
Buckwheat as a Farm Crop.....372
Cabbage Worm, New Destroyer of..... *Illustrated*..378
Care of the Work Team 367
Cart, A Liquid Manure.....366
Catalpa, What of 370
Cattle, Holstein—A Famous Cow..... *Illustrated*..365
Cattle, Keeping in the West.....374
Chat with Readers.....371
Cherry, A New..... *Illustrated*..367
Cocklebur—Will it Poison Swine?...2 *Illustrations*..361
Corn, Field and Sweet.....361
Crocuses in Grass 377
Dog Question, Hookertown View of the.....375
Drain Tiles for Blanching Celery..... *Illustrated*..367
Eggs, All the, in one Basket.....366
Elm-leaf Beetle..... *Illustrated*..386
Fairs, Prepare for the.....364
Fall Planting—Stripping the Leaves.....377
Farm Animals, Feeding and Care of.....2 *Ill*..360
Farm-house, A New York 2 *Illustrations*. 372-373
Farming, Salt-Water.....5 *Illustrations*..368
Fence, A Cheap Picket..... *Illustrated*..361
Flower Garden and Lawn.....359
Flowers, Sow Now for Spring.....379
Fodder, Do not Stack Corn.....372
Garden, Market and Kitchen.....359
Garden, Orchard and Fruit.....359
Gates in Wire Fences..... 2 *Illustrations*..374
Granaries, Preparing the.....375
Grasses, Valuable but Little Known..... *Illustrated*..379
Greenhouse and Window Plants.....359
Grindstone, The Farmer's 7 *Illustrations*..362
Household.
Plush and Satin Picture Frame..... *Illustrated*..380
A Ball Holder..... *Illustrated*..380
Use for Old Wash Stands.....380
Taste in House Furnishing.....380
A Scrap Receiver from a Fan..... *Illustrated*..380
Virginia Corn Bread. 380
Make Your Home Attractive.....381
A Circular Flower Stand..... *Illustrated*..381
A Cellar Bin *Illustrated*..381
A Convenient Corner-Stand.....2 *Illustrations*..381
A "Smoke House" or Smoke Box..... *Illustrated*..381
Spiced Round of Beef.....381
Incubator, What Shall I Buy?..... 370
Inventions for the Grain Field.....376
Ladder, A Fruit..... *Illustrated* 359
Lambs, Early, for the Butcher.....372
Law for Farmers—Hiring Farm Help. 369
Lawn, A, and How to Make it..... *Illustrated*..362
Live Stock Notes.....358
Live-for-ever, Killing.....370
Losses Among Sheep.....370
Meadow Land, Autumn Care of.....364
Measuring Rod, A Sliding..... *Illustrated*..364
Milk, Butter, and Beef. 2 *Illustrations*. 385
Night-Blooming Cereus as a House Plant.....377
Narcissus, A New..... *Illustrated*..377
Paper Making from Wood.....370
Pecan-Nut, The 370
Pig, The, as a Plowman.....385
Pigs, Weaning and Feeding Young..... *Illustrated*..361
Piggery, A Prize.....2 *Illustrations*..376
Plant, the Artillery..... *Illustrated*..378
Plow, The Steam Outdone.....370
Pollen, The Influence of.....366
Postage Rates Reduced.....371
Potato Beetle, Fight the.....371
Potatoes, Digging Early.....372
Potatoes, Do, Mix in the Hill?.....378
Rainfall and Distribution of Grain.....364
Rush, The Zebra. *Illustrated*..376
Sericulture in California.....367
Sheep, Foot Rot in French Market....3 *Illustrations*..375
Sheep, Southdown..... *Illustrated*..365
Sled for Drawing Corn Shocks.....367
Stack, Making a Straw.....359
Storm! The, is Coming..... *Illustrated*..357
Thatching Roofs with Straw.....359
Tomatoes and Tomato Seed.....371
Tube, A Watering..... *Illustrated*..359
Wagon Shed and Tool House *Illustrated*..367
Walks and Talks on the Farm..... *Illustrated*..363
Wheat, Broadcasting and Drilling-in.....379
Work, Farm for September..... *Illustrated*..358

For Editorial Correspondence, Humbug exposures, book reviews, business announcements, and other matters of special interest, see the last pages of this number of the American Agriculturist.

September.

Among the stubbled corn
The blithe quail pipes at morn.
The merry partridge drums in hidden places,
And glittering insects gleam
Above the reedy stream,
Where busy spiders spin their filmy laces.

The cricket chirps all day,
"O fairest summer, stay!"
The squirrel eyes askance the chestnuts browning;
The wild fowl fly afar
Above the foaming bar,
And hasten southward ere the skies are frowning.

GEORGE ARNOLD.

Onward.

Dr. George Thurber, who for nearly a quarter of a century has been editor-in-chief of this paper; Mr. Andrew S. Fuller, who for a longer period has written for the *American Agriculturist;* Mr. Joseph Harris, who has resumed his editorial connection after twelve years; Col. Mason C. Weld, who for fifteen years has been known to the readers of this journal, and Dr. Byron D. Halsted—comprise a staff, who propose to make the *American Agriculturist* in the future, what it has been in the past—THE LEADING AGRICULTURAL JOURNAL IN THE WORLD. Subscription Price, $1.50 a year.

Read on page 395 the inducements offered to new subscribers to the *American Agriculturist*, whose names are received before September 20.

The Great West.

This year Mr. Judd again makes his annual tour—a tour sometimes extending as many as ten or fifteen thousand miles—through the Western States and Territories, for the benefit of those readers who desire correct information regarding this vast region of country. From Dakota he writes that at no time during seven years can he recall such magnificent crops as everywhere greeted his eye from New York to the Missouri River. As a general thing, people are in good spirits, and the financial depression prevailing during the mid-summer at trade-centers, does not extend over the country to any great degree.

We are now giving in every issue of the *American Agriculturist*, over one hundred illustrations of inventions and labor-saving devices of every character, for the farm, garden and household; also original pictures from every day rural life, which not only please and instruct, but develop the taste for what is beautiful and elevating in this world. Time was, when farm labor was considered mere drudgery. It is a pleasure to know that this journal has materially aided in making the pursuit of agriculture so attractive, that nearly every business man now in our large cities, looks forward to the time when he can own a little place for himself in the country, be it ever so small.

"I do not understand how you can afford to furnish the *American Agriculturist* at $1.50 per year," said one of the owners of the first illustrated paper in America to us a few days since. It is a remark very often made by publishers, as well as readers, of various other journals. We shall continue, however, to supply this periodical at this price, notwithstanding the new departments and new features constantly being added. We may observe, however, that the *American Agriculturist* could not be afforded for double the price, were it not for our very large subscription list and advertising patronage.

Editors, Agents, Canvassers, and Subscribers are referred to p. 395, for matters of special interest.

Three Months' Subscription to this Periodical for Nothing. See page 395.



The yield of wheat depends largely upon the tillering, therefore sow early on rich, mellow soil. Wheat needs to make a strong growth of roots before winter. Use superphosphate or other commercial fertilizer, when there is not sufficient barn-yard manure. Lime may be added to soil rich in vegetable matter. Its chief value is in liberating other elements of plant food. As a preventive of rust, wet the seed grain in strong brine, or a solution of four ounces of blue-stone (sulphate of copper), to a gallon of water. Sow with a drill when possible. If the wheat land is not well drained, make the water furrows with the plow after all else is done. These will quickly carry off surface water after hard rains. Grass seed may be sown a few weeks later. Clover is best sown in spring, and the seed may be scattered on the last snow.

The best way to harvest corn is to cut the stalks close to the ground, and place them in shocks. A "shocking horse" is almost indispensable in setting up corn so that it will stand. Willow, or other tough withes are excellent for tying the shocks when the stalks are not suitable. The seed corn should have been selected in mid-summer, but if delayed, neglect this important work no longer. Carefully decide what are the superior points in the corn desired and choose that. This can be best done while the stalks are standing. Go through the corn field and cut the selected stalks and place them in separate shocks.

Buckwheat should be harvested before frost can injure it. Cut it in the morning when the dew is on, to prevent shelling. Thresh as soon as the straw is sufficiently dry, and spread the grain thinly upon a floor, as it may heat in a large heap.

Harvest potatoes when ripe, and before hard rains induce new growth, or cause them to rot.

LIVE STOCK NOTES.—One of the leading requisites for health and thrift in live stock, is regularity in feeding and watering. Both the quantity and quality of food should be uniform. Pastures are now beyond their prime, and need to be reinforced by roots, fodder-corn, or other green food. Any falling off in condition in farm stock should be strictly guarded against as cold weather approaches. Young animals profit much from any extra feed during the first year. Horses after a day's work enjoy being sponged with clean water containing a few drops of carbolic acid. After the regular feed, they may pass the night in the pasture. Look well to the feet and the shoulders of work-horses.

SUNDRY MATTERS.—Clean up all rubbish about the yards and buildings, and store all farm implements not in use in a dry place. Do not think lightly of the fairs, but compete for some of the premiums. Make it a point to go to at least one exhibition and take the family. Prepare storage room for roots and other late crops, and be well ready for taking in the live stock when cold weather comes and autumn storms threaten.

Orchard and Fruit Garden.

Gathering and marketing will be an important work. Good fruit, neatly and honestly packed, will always bring good prices in seasons when poor fruit will not pay its freight.....Pick all pears before they become mellow.....The longer the peaches will be in reaching the consumer, the harder should they be when picked.....Small local markets often pay better prices than those of large cities.....Recollect what has been said about drying or evaporating fruit.....Budding of peaches and pears on quince stocks, should be completed. See that the ties are cut in season.....Stones of peaches and plums, if in small lots, may be kept in boxes of sand in a cool cellar.....Where fall planting is desirable, prepare the land and order trees at once.....Cut away blackberry canes as soon as the fruit is picked; do not allow new canes to grow higher than six feet.....Strawberry plants layered in pots may still be planted. Keep the runners from new beds, unless more plants are wanted..... Grapes should be packed according to the customs of the market to which they are sent. Small fancy paper boxes, and baskets holding ten or twenty pounds, are now popular....Attend to late insects.

Market and Kitchen Garden.

This should be a month of abundance on the table and in the markets.....In preparing vegetables for market observe the preferences of the place where they are to be sold. Wash all roots; better feed them out at home, than send to a city market unwashed.....Warm days and cool nights favor the growth of cabbages, celery, etc.; also the growth of chick and other weeds, and the hoe and cultivator will be frequently required.....Sow early cabbages, cauliflowers and lettuce, for plants to winter in cold-frames. In most places lettuce plants will keep without glass if covered with leaves....Sow spinach, kale, usually called sprouts, winter radishes, corn salad, and flat turnips..... Cut cucumbers for pickles when of the desired size, every other day, always with a stem.....When melons are ripe, they part readily from the stem; the ripeness of watermelons is usually told by the hardness of the rind.....Late tomato blossoms can not now produce fruit that will ripen; cut them away.....Only the celery needed for immediate use or sale, should be earthed up for blanching; it is too early for the main crop.....As soon as a crop is off, gather the refuse for pig or cow, and prepare the land at once for some winter crop.

The Flower Garden and Lawn.

The lawn should be mown according to the condition of the grass, rather than at stated periods. See article page 362 on "Lawn Making."....Stake tall-growing plants, dahlias, tuberoses, lilies, etc., against strong winds....Pot chrysanthemums for house blooming; those to remain out will require stakes.....Plant hyacinths, narcissuses and other "Dutch bulbs," as early as they can be purchased. Sow seeds of perennials as soon as ripe.... Make cuttings of bedding plants; the old plants are seldom worth taking up.....Violets should be planted in frames to be covered with leaves in cold weather.....Gather seeds as they ripen, label at once, and as soon as dry and cleansed, store in paper bags in a dry place away from mice.

Greenhouse and Window Plants.

The houses and heaters should be ready for immediate occupation.....Potting soil, sand, pots and all things needed for winter use are to be stored under cover, or in the cellar.. ..Plants to be taken up from the borders for winter blooming, should now be potted, cutting back both top and roots.....Re-pot those plants that have been in pots all summer.....See that pots and plants are clean when taken in Sow annuals for winter bloom, pot bulbs, and make cuttings of geraniums, etc.

WHERE ARE THE BEES THE BUSIEST?—Our yearly honey crop is about twenty-six million pounds, of which Tennessee produces over two millions, followed closely by New York. Ohio comes next, and then North Carolina, Kentucky and Pennsylvania. The other States producing over a million pounds are Illinois, Iowa, Virginia, Georgia, Michigan and Arkansas. The honey interest is widely scattered, and there is room for it to become still more so, to the benefit of plants as well as man.

Thatching Roofs with Straw.

Several of our readers ask us for directions for roof-thatching with straw. A well-made thatched roof is water-tight, durable, warm, easily repaired and especially adapted to prairie regions, where shingles are expensive. The straw employed in making the roof should be hand-threshed, and dampened before it is used. The roof-laths may be saplings, two inches thick, and flattened where they cross the rafters, to which they are nailed. The straw is prepared in small bundles, with the butts evenly arranged, and are tied to the lath with tarred twine, using a wooden needle. The bundles are laid in tiers, beginning at the eaves in the same manner as with shingles. The peak is covered by bending the straw in the middle, and sewing the ends to the thatch on each side.

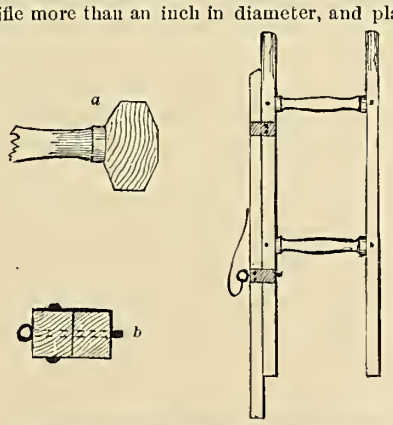
A Watering Tube.

Mr. G. W. Jerrard, Aroostook Co., Me., sends us a sketch and description of an implement for watering garden plants. It is a tin tube, shown at *a* in the engraving, one-half inch in diameter, eight inches long, perforated near the bottom, and with a conical end. The upper end, *b*, is in the form of a funnel. In using this device, insert the conical end of the tube in the ground as near the plant as convenient, without disturbing the roots, and turn the water into the funnel. The water will pass out into the soil through the perforations at the bottom. The soil is not baked on the surface when watered in this manner, and the operation is very quickly done. Any local tinsmith can make the tube at a slight expense. A small flower pot is sometimes sunk in the soil near the plant, and the water, when poured into it, will gradually soak away.



A Fruit Ladder.

An orchard ladder should be both light and strong. Mr. H. H. Hawes, Kennebec Co., Me., sends us a description of such a ladder. The sides may be of two by three-inch spruce, shown in section with trimmed corners at *a*. The "rungs" should be of hard-wood—white oak or white ash, a trifle more than an inch in diameter, and placed thirteen inches apart. The bottoms of the side-pieces may be left square, and on one rivet an iron band. Fasten a similar band to a hard-wood piece twenty eight inches long, and nearly the size of the ladder-side. Small holes are bored through this piece and also the ladder-side, in which is placed an iron pin, *b*. By means of this device the ladder can be quickly adjusted to the unevenness of the ground. This movable foot can be removed.



A FRUIT LADDER WITH MOVABLE FOOT.

Making a Straw Stack.

JOSEPH HARRIS.

As soon as the threshing machine comes on to the farm, one of the first questions is, how large shall we make the bottom of the straw stack? If you ask the threshers, they will say, "Be sure and make it big enough." But if you want to save all the straw you can, a much more sensible answer would be, "Be sure and make it small enough." If you have more straw than can be got on to the stack, it is an easy matter to put a wagon by the side of the stack, and draw a few loads to the barn. But if you run short of straw, you cannot possibly top off the stack properly.

Barley, oats, and pea straw is frequently so much broken up by the machine, that it packs closely, and occupies far less space than rye and wheat straw. Of wheat and rye straw it will require about one thousand cubic feet of stack room to hold a ton, and a yield of twenty-five bushels per acre may give you a ton of straw. Occasionally a heavy crop of wheat will give one hundred pounds of straw to each bushel of wheat. When wheat, rye, barley, and oats straw are stacked together in anything like equal proportions, we shall not be far wrong in estimating, on the average, half a ton of straw to each acre. Furthermore, in such a case eight hundred cubic feet of space will be sufficient per ton. In other words, a stack eleven and a half feet in diameter will hold about an acre to each four feet in hight. One thirteen feet in diameter will hold an acre to each three feet in hight; one sixteen feet in diameter will hold an acre to each two feet in hight; one twenty feet in diameter, will hold about an acre to each one and a half foot in hight, and one twenty-three feet in diameter will hold an acre (a half a ton of straw), to each foot in hight. A stack thirty-three feet in diameter, will hold one ton of straw to each foot in hight; one forty feet will hold one and a half ton to each foot in hight.

When you have decided how large a stack to make, place a fork in the centre. Tie a string to it, and if the stack is to be forty feet in diameter, tie a knot in the string twenty feet from the fork, and hold it in your left hand. Spread out the straw on the bottom of the stack a little farther than it ought to be, and then pass round the stack and push in the straw with the feet, until the circumference is twenty feet from the centre. It is little work, and is far better than trusting to the eye.

In building the stack, the main point is to keep the middle full and well trodden down. The chaff and the straw that is broken up into small lengths is more compact than the long straw, and should be kept in the middle of the stack. Place the long straw on the outside of the stack, and also bind it with long straw. It is neither safe nor desirable to tread down the straw on the outside. The lighter it is the more it will settle, and the better it will shed the rain. This is particularly important after you commence to build the top.

Until we get longer straw carriers, we must do the best we can with those we have. As we approach the top, the straw carrier leaves the straw nearer the outside of the stack, and the man who throws it back can hardly avoid removing the long straw and leaving the chaff. Take special pains to remove the chaff, and to pack long straw under the carrier.

When threshing, the farmer should avoid, if possible, taking any steady work that will confine him to one spot. He will find plenty to do in strengthening the weak spots, in helping where help is most needed. This will frequently be at the straw stack. The outside should be raked down, and the straw thrown on to the carrier. Frequent visits to the top of the stack are desirable, if for no other purpose than to see that the middle is well trodden down. When the stack is finished, hand the stacker some "riders" to hold down the straw, and prevent the wind from blowing it off. Rails securely tied together with wire or rope will answer the purpose. Twisted hay or straw ropes are sometimes used, but it is not pleasant to have a rail slip down on to one's head. Raking the top of the stack until the straw slants down, makes the stack almost as safe against rain as if it were thatched.

Feeding and Care of Farm Animals.

PRIZE ARTICLE.—BY "A WESTERN FARMER."

Cattle.

Every intelligent farmer provides stables or good sheds for his cattle. They should be warm, light, and well ventilated. For cow stables, floors of plank, very slightly inclined to the rear with a deep gutter are best. Windows and ventilators should be fitted with sliding shutters, and be covered with wire screens to keep out flies in summer. For litter use any dry material—straw, forest leaves, saw-dust, dry sods, etc., etc.—that will absorb the liquids. Sheds should be enclosed on all sides, and have wide sliding doors, which may be closed in very cold weather and in fly time. Grade the floors to slope to one side. All mangers need to be grain-tight, with bottoms at least twelve inches above the floors.

Well cured Timothy and clover are best for hay. The coarse grasses, Hungarian, Millet, etc., are excellent if cut just before or at the commencement of blossoming, properly cured and stored in a dry place. Clover and these coarse grasses are best kept in narrow hay-sheds, well ventilated at the sides and having a floor, of poles or rails, raised eighteen inches above the ground. Clover can be cured in such sheds much better if put in alternate layers with wheat or oat straw, or any of the coarse grasses. When hay or other coarse food is scarce, clean, bright straw may be used. It should be cut short, dampened, and have oil-cake meal or oat-meal and bran mixed with it, when stock will eat it clean and do well on it. In feeding hay in the stable, a cutter is almost indispensable. Hay fed in the yard is best uncut.

Sweet corn makes the best fodder corn. Field corn is very good. Unless properly harvested and stored, it rapidly deteriorates. A shed for its preservation is shown in figure 1. This shed is sixteen feet wide and thirty-two long, nine feet high at the sides, and twelve in the center. The floor is of four-inch boards, laid an inch and-a-half apart, eighteen inches above ground. There are sliding doors at one end, and a window at the other. The fodder is separated into four-foot divisions by movable posts, which fit into slots in the floor and ceiling. Figure 2 shows the ground plan with the shed filled, except the two center divisions reserved for sheaf oats. The corn should be cut just as the grain is hardening, placed in shocks, and allowed to cure six to ten days, according to the weather. It is then bound into convenient bundles, with

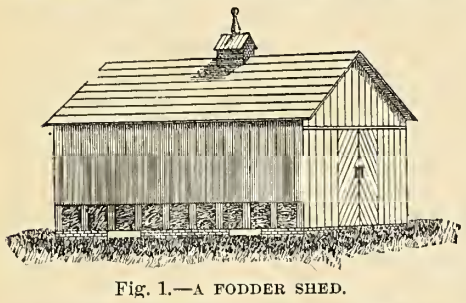


Fig. 1.—A FODDER SHED.

straw or twine, and stored in the shed. The lower end of the stalk is worthless, therefore cut twelve to twenty inches high, according to length of stalk.

Corn should always be used with coarse feed. Shell it; nothing is gained by feeding it on the cob, but often much lost. For calves it is best cracked or coarsely ground and mixed with oats or bran.

Sheaf oats are an excellent feed, or for variety when hay is scarce. If cut as soon as ripe, bound in medium-sized sheaves, and stored in sheds similar to corn fodder, the straw will be nearly equal to hay. Run through a feed-cutter, and mixed, stock will eat the whole and thrive upon it.

Oil-cake meal, corn-meal, oat-meal, and cotton-seed meal, are all excellent for cattle when fed judiciously and with plenty of coarse feed. A very successful feeder has met with the best results with the following mixture: Two hundred and eighty pounds of shelled corn, and one hundred and twenty pounds of oats are ground together, one hundred pounds of oil-cake meal added, and the whole thoroughly mixed. This is fed twice a day, half a pound for each one hundred pounds of live weight of animal. With this and good hay a thrifty grade Shorthorn, two years old, ought to make a gain of about three pounds per day.

There is no doubt that ensilage, when properly "cured," and fed in combination with other foods, is an excellent article for live stock.

ROOTS.—The value of the root crop can hardly be over-estimated. Of mangels, the Yellow Globe seems to be the best keeper. The Long Red variety will generally give a greater yield to the acre on rich, deep soil, but the roots are far more difficult to harvest and handle. There is no great differ-



Fig. 2.—GROUND PLAN OF FODDER SHED.

ence in the value of mangels and beets for feed. Carrots are valuable for both cattle and horses. When stored they should be "ricked" up like stove-wood; they keep better, and room is economized. The Half-long is an excellent yielder and easy to harvest. A good, roomy root cellar is indispensable to every farm.

The best pasturage is Kentucky Blue Grass and Red Clover. It is the earliest and also the latest. On rich soil we have seen one acre keep two cows in fine condition through the whole season. A mixture of Red Clover, Orchard Grass, Meadow Fescue, and Timothy, makes a very satisfactory pasture. Do not graze a pasture so close that the sun will destroy the grass, or the frosts heave it out.

Care of Milch Cows.

Have the stable so arranged that it can be darkened for the cows in fly time. Provide abundance of pure water. They must have this to give sweet, pure milk. Keep salt where they can obtain it at all times. If pasturage gets short in late summer, feed green corn, clover hay, chopped roots, or meal at evening. Keep up their condition by all means; remember winter is approaching. Immediately after the oat crop is harvested, the land may be plowed and sown with corn, either broadcast or in drills, and it will make capital fall feed, much better than turnips. If frost is likely to catch any of it, cut it and bind it in small bundles. After curing, store it in the fodder shed.

In winter provide a warm stable, bed well, and keep clean. In very cold weather give tepid water to drink. Turn the cows out for an hour at midday. Supply all the food they will eat. Mix and vary it as much as possible, to keep up a steady flow of milk. Well-fed cows give rich milk; half-fed cows, poor, thin, blue slop. To fasten a cow in the stall, buckle around her horns, or neck, a leather strap two inches wide, having a ring attached. To the manger tie an inch rope with a snap fastened to the end. The ring and snap can be quickly connected or disconnected. If you value the comfort and health of your cows, do not use that instrument of torture, the stanchion.

Have regular hours for milking. We always obtain the greatest yield by milking while the cows quietly eat their meals in winter, and while they chew their cud, or lick a little salt in a dark shed in summer. A good milk pail is a four or six gallon can, having a movable cover with a hole in one side of it. Set a five inch strainer funnel in the hole and milk into it.

After a cow has been served by the male, it is best to keep her in a stable away from other cattle twenty-four hours. The period of gestation varies somewhat, two hundred and eighty-five days being the average. For two weeks before calving, feed very little grain of any kind. Hay, potatoes, mangels, carrots, etc., are best to keep the blood cool, and the system relaxed in winter.

CALVES.—Calves do best when allowed to suck the cow. One cow should raise two calves. They should be suckled or fed three times a day until about seven weeks old; after that twice a day will do. Never allow them to run with the cow. It is much the best plan to never let the calf suck a milch cow. Milk her, and feed the milk while warm to the calf. In about a week it may be mixed with sweet skim milk, about half-and-half, gradually increasing the latter as the calf grows older. So soon as it shows disposition to eat, supply it with oat-meal and bran mixed wet, or the "chop stuff," now ground at most flouring mills, and bran, wetted and mixed in about equal proportions. Either of these feeds will sour in about twelve hours after being mixed; keep it fresh, and wash out the feed box. Oil-cake meal, in very small quantities, mixed with bran and corn-meal, is very good. Tie a small bundle of hay before it, and renew when it has picked out the best. A mangel, or a few potatoes cut small, will be relished and keep the bowels open. Put the calves on pasture as early as possible. Never allow them to run down or become thin in flesh. A small feed of corn-meal or shelled corn, oats, or "chop stuff," and bran every evening will keep them in good, thriving condition. In winter vary their food, and keep them warm. See that they have plenty of good water, also salt. Bulls should be rung when six months old, and thereafter kept separate from heifer calves. Plenty of uncut hay, with some corn-fodder or sheaf oats, and a little grain feed is best for them in winter.

Nearly all diseases to which live stock are subject, are the result of neglect of the simplest sanitary rules, and may be prevented by the exercise of a little common sense. Never compost manure in a cellar beneath the stables, nor in an adjoining shed. The foul, noisome gases arising from the rotting mass, will poison the air throughout the entire building, and to compel animals to breathe it is the hight of folly. Fancy ventilators and clean floors will not remedy the matter. Manure and all decaying matter must be removed to a distance from every part of a building, to keep it fit for live animals. Farmers who neglect these simple precautions need not be surprised if strange and fatal diseases frequently break out among their stock, and inflict upon them great loss. The fault will be theirs alone. Never under any circumstances change any kind of stock suddenly from one kind of food to another which they are not accustomed to. Great and often permanent injury may result. Let such changes be gradual. For the treatment of bloat, use a trochar and canula. Every farmer should have them. They are cheap and are often the means of saving the life of stock. Full directions for use accompany them, and any hardware dealer can supply them.

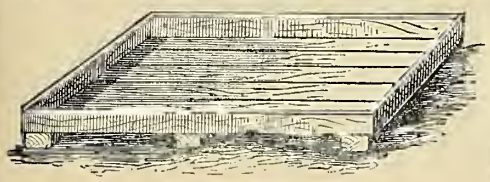
When a cow or calf is seen choking, grasp it and feel along the outside of its throat for the hard substance. When found, exert vigorous pressure, and slide the article up into the mouth. For scours in calves, feed new milk (heated near to the boiling point, and allowed to cool sufficiently) with oats, bran, and corn-meal dry until cured. Heavy milkers are most liable to garget. We prevent it by milking once a day the last month of pregnancy, and feeding cooling, relaxing food. Fomenting the udder once a day with tepid water is a great help. Watch the udders of pregnant cows for indications of garget, and relieve promptly. In three different instances we found it necessary to regularly milk young heifers, of a strain of heavy milkers, nearly a month before dropping their first calf. A neighbor having one of the same strain refused to go "contrary to nature," as he termed it, and the animal was ruined. In every case, after the calf has sucked the first time, the udder should be drained of its last drop. This should be done regularly twice a day until the calf takes it all.

REDUCING BONES.—Sulphuric acid is the agent employed in reducing bones to a superphosphate. It is a very corrosive liquid, and when of full strength, will quickly destroy any flesh or clothing it may touch. Unless a person is fully acquainted with the dangerous qualities of the acid, we unhesitatingly recommend him to leave it alone. Bones may be burned, and the ashes scattered upon the soil at the rate of two hundred pounds per

acre. Green bones mixed with unleached ashes, and kept moist, will soon become soft, and may be broken up with a spade and applied to the land.

Weaning and Feeding Young Pigs.

Pigs should gradually be weaned, and fed in a separate pen. If kept in a field, make a small enclosure for them. When managed in this way, pigs will continue growing when the sow fails to afford sufficient milk. Overfeeding at weaning time, is injurious. The pigs gorge themselves and become ill-shaped. They should be fed a little, six times a day. Pigs with disordered stomachs can not thrive. Inflammation of the bowels is a common disorder, and is caused by over-eating, unwholsome food, and exposure to cold. Food much fermented will induce inflammation of the stomach and bowels. This is the cause of much mortality among hogs fed with slops from hotels, asylums, etc., where there is a large amount of fermented material mixed together in the swill-vats. The same condition may follow the feeding of much corn, with but little exercise in the open air. When there is access to green food and the soil, young pigs may be fed corn more largely. People now



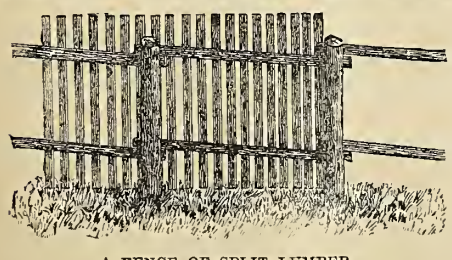
A FEEDING PLATFORM.

wish more lean pork, and the skilled swine growers should recognize this desire and act accordingly. The more high-priced pork they can sell, the more profit they will realize. Fine wheat middlings make the best ground feed for young pigs.

The form of the trough is important. It should be so constructed that the pigs cannot get into it with their dirty feet. Nail slats across the trough so that the pigs cannot crowd each other. Feeding on the ground is shiftless and wasteful, especially corn or small grain. Always place the dry food on a platform in a high, dry spot. The platform should be large enough to accommodate the pigs without crowding. The grain may be kept on the platform by a narrow siding. Such a platform as shown in the engraving will last for years, and save much grain from being wasted. The platform should be frequently swept clean. When not in use, it may be turned up edgewise to prevent decay. The bottom boards are nailed to stout scantlings, which rest upon flat stones. F. D. CURTIS.

A Cheap Picket Fence.

In localities where sawed lumber is expensive, and split timber is readily obtained, a very neat picket fence may be made with little outlay, by using round posts, split stringers, and rived pickets, as shown in the engraving. The stringers are eight to twelve feet in length, and usually one of the flat sides is sufficiently smooth for receiving the pickets. Let the stringers project a few inches beyond each post, adding strength to the fence, and should the posts decay, new ones may be driven in upon either side, and the stringers readily at-



A FENCE OF SPLIT LUMBER.

tached by heavy nails or spikes. With timber that splits freely, a man can rive out five or six hundred pickets in a day. The construction of the fence is plainly shown in the above engraving.

Field and Sweet Corn.

The varieties of Indian corn are without number, but they may be all placed in two classes as regards the chemical composition of the grain, viz., field and sweet corn. The average composition in one hundred parts of these two classes is as follows:

	Albuminoids.	*Fibre.*	*Carbohyd'tes. Starch, Sugar etc.*	*Fat.*	*Ash.*
Field.....	12.	1.9	78.7	5.7	1.7
Sweet.....	13.2	2.3	73.5	8.9	2 1

It is seen that sweet corns contain more albuminoids, fibre and ash, and much more fat than common or field corns. The additional amount of albuminoids and fat give the sweet corns their much desired superior richness.

The flint and dent corns have practically the same composition, there being one-half per cent more water in the dents than in the flints. There is no marked difference in the composition of eastern corns, or northern and southern sorts. The southern grown varieties are considered superior, and more is paid for them by the starch factories. They are better ripened, sounder and dryer, yield more starch, and make better bread. The differences are more mechanical than chemical.

Pop corn is any sort, the grains of which will burst open when they are heated. It is a popular error, that pop corn contains a larger per cent of oil, which decomposes and volatilizes with heat, and thus bursts the grain. Analyses show that there is no excess of oil over that in common varieties of corn, and none of this is lost in the process of popping. Professor Brewer found 4.79 per cent of fat in one variety of pop corn before popping, and 4.94 after; in another 5.59 before, and 5.67 after. Both popped particularly well. A hard flint variety (Waushakum) contained 4.67 per cent of fat; the same after roasting had 5.14 per cent. The oils instead of volatilizing and escaping, probably absorbed oxygen during the heating. Only hard, compact varieties of corn will pop; this peculiarity is due to the bursting of the closely confined starch grains, caused by the expansion of the contained moisture, and the sudden rupture of the hard outerpart of the grain.

Color has little or no influence upon the composition of corn. It varies from milk-white to yellow, chestnut, indigo, and black. Soft varieties are best for feeding whole to farm stock. There is considerable waste in using old flint sorts unground. Corn on the average is not so rich as wheat in albuminoids; but the most noticeable difference is in the amount of oil. The fats in wheats range from 1.26 per cent to 2.67 per cent, while in corn from 3.40 per cent to 9.31 per cent. It is easy to see that corn is a very fattening food.

Green sweet corn is more nutritious than field varieties, and contains from fourteen to fifteen per cent of albuminoids. It is richer when suitable for boiling than when ripe. After the boiling period, the starch, fat, woody fibre, etc., increase rapidly, while the nitrogen compounds fall behind.

Cocklebur.—Will it Poison Swine?

Many cases of sudden death in swine have been ascribed to the Cocklebur, and numerous inquiries have been made in recent correspondence as to its poisonous character. The probabilities are against Cocklebur being a poisonous plant; the family to which it belongs, the Composite, while the largest among flowering plants, is singularly free from deleterious species, and when we consider their total number, about ten thousand, there are very few that possess any marked active qualities. But it is not necessary that a plant should be poisonous to be injurious to animals. We have an example in Hungarian grass, which has caused the death of horses. The seed-head bears numerous small, roughly barbed bristles. When the grass is cut at the proper time, these bristles are harmless. When the seed is ripe the bristles are very hard and sharp, and in the stomach and intestines of the animal, mat or felt together by the aid of their barbs, forming large balls, which obstruct the intestines and prove fatal. In these cases, death is evidently not from any poisonous quality of the hay, but is due to mechanical causes. While Cocklebur may not be poisonous, it may in a similar manner kill swine by mechanical obstructions. That it is abundantly provided with means for forming these, will be seen from the description and engravings of the plant. Besides Cocklebur, Clotbur, and Bur-weed are other common names for the *Xanthium strumarium* of botanists. It is found all the way across the country from ocean to ocean, and



Fig. 1.—UPPER PORTION OF BRANCH OF COCKLEBUR.

extends from Canada to Texas, and far southward into Mexico. The plant is also a native of the warmer parts of Europe, and it extends to the southern parts of England. It is very frequent along road-sides in rich land, and is a rough, branching annual, one to three feet high, with coarsely lobed leaves. Figure 1 shows the upper portion of a branch with its foliage. The staminate flowers are in small, globular heads at the top; the pistillate or fertile flowers are below in the

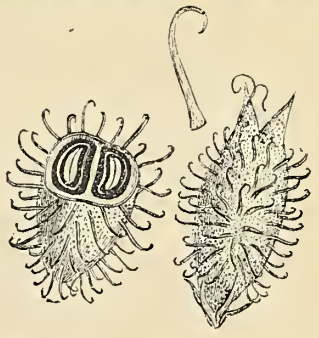


Fig. 2.—THE HOOK-BEARING BURS.

axils of the leaves, enclosed by pairs in a strong, prickly covering, called an involucre. As the seeds mature, the involucre enlarges, and when ripe, is about two-thirds of an inch long, hard, and armed with strong, hooked prickles. Figure 2 gives at the right-hand an entire bur, at the left-hand is a bur cut cross-wise, to show the two seed-like fruits, above these is one of the hooked prickles. When the burs are ripe, they readily leave the plant, and attach themselves to the coat of any passing animal. The plant is especially an-

noying to sheep-owners, as these burs become entangled in the wool. Those who have travelled in Texas and Mexico, soon make acquaintance with the Cocklebur. Horses and mules, while grazing for a single night, will have their tails clotted with these burs, and converted into a useless club. It can be understood, that should swine eat the burs in considerable quantity, the pieces of them can, by means of the prickles, form masses which may prove fatal. Both on account of its probable danger to swine and its injury to sheep, there should be an united effort to destroy the plant. Being an annual, its extermination would not be difficult. If the plants are cut down before the seed is ripe, new ones can not appear unless the ground is re-seeded. Cut them before the seeds mature.

Instructions for Making Lawns.

ELIAS A. LONG.

There are two ways of making a lawn, the one by sodding or turfing, the other by sowing grass seeds. For small gardens the former is undoubtedly the best, while for larger areas, seeding is necessarily done, as it generally makes a good lawn, and is much cheaper, although more time is needed to bring it to perfection.

If it can be done, the ground to be put into grass ought to be allowed to settle during one or two good rains after the last grading, and then be sodded or seeded. Otherwise some slight unevenness



AN EARTH-RAMMER AND SOD-BEETLE.

may appear after thorough settling. If the rain cannot be waited for, the earth may be settled with the roller. An earth rammer may also be brought into use, and if it is found that any spots are softer than others, they should be firmed by this tool, afterwards even-up the surface as may be needed, by the use of the rake. The engraving shows an easily made earth-rammer and sod-beetle combined, that will be found useful in a garden. For firming earth, it is used mostly in a perpendicular position, striking the soil with the heaviest end; but in settling sods evenly, these are struck mostly with one of the flat sides. It may be worked out of a solid piece of five by five-inch scantling, and is usually made about four and a half feet long.

In laying sod, the surface of the ground should first be slightly loosened with the rake to make a bed for the grass roots, and if dry, sprinkled as fast as the turf is brought. The best turf is that taken from a pasture lot or roadside, that has been kept low by grazing. That where sheep have been pastured is preferred, as these animals, by their habit of biting close to the ground, destroy the coarse weeds. The better way of taking up the turf is to have the sods in long pieces, and to roll them up. In cutting the sod some gardeners use the line, and others a board with a straight edge, in order that the cutting may be accurate. The board has this advantage, that it may be a foot wide, and then it can serve as a guage for width without any further measuring, by cutting closely along the sides. First the cut should be made lengthwise with a sharp spade or turfing iron. Then starting at one end, one man with a sharp spade should cut the roots, so that the sod will be about an inch and a half thick, the assistant grasping the end and rolling it up, the grass side inwards, keeping on as the cutting proceeds, until a roll as large as it is convenient to handle is gathered. Where one man works alone, he may separate the sod by thrusting the spade in from the side, afterwards rolling it up. These rolls are readily transported, and quickly unrolled and laid, leaving the lawn surface with few seams, as compared with cutting in square pieces. Sodding may also be as well done by using sods that are cut about a foot or fifteen inches square. Join all edges carefully, using a large knife in cutting. As the laying proceeds, if some portions of the turf happen to be a little thinner than others, soil should be worked underneath such parts. The different pieces should all be snugly pushed together as the work goes on. After being properly laid, all parts should be beaten with a wooden beetle, and afterwards well rolled. All of these operations are to be followed by a heavy sprinkling of water to encourage new growth. Along the line of walks, drives, and borders, the turfing should be carried a little beyond the line, as it will be, when finished, so that in dressing down the edges afterwards, the cutting will be through good, strong sod.

Where lawns are made by seeding, the work is commenced by turfing. Wherever there is a termination in the grass plat, not otherwise bounded, a strip of turf about a foot wide should be laid down for making a firm edge. Do not remove the soil quite as deep as the sod is thick, as some allowance should be made for compression in beating. When ready to sow the seed, the surface should be passed over with the rake and mellowed up a little on the top. It is a common error to use grass seed too sparingly. Use four or more bushels to the acre. Where it is known that any one sort does well, it is best to sow only that one kind. As a rule Red Top, Bent grass, or Blue grass, are generally preferred. Where it is thought best not to depend on one alone, then several kinds should be mixed. Some always sow a little White Clover with the grass seed, for the greenness it maintains in drouths, but wherever lawns are kept watered this should not be added. In sowing, the seed should be divided into two portions, half to be sown by passing over the land in one direction, and then, after lightly raking over the surface, sowing the remaining half cross-wise. Rake in the seed, or use a brush harrow, and after this let a thorough rolling be given.

As the grass starts up, and the weeds with it, the mower must be kept at work on the new lawn. The weed seed lying in the ground usually comes up quickly, and will prove annoying for a while, but if the grass was sown thickly enough, and the mowing and cutting out coarse growing weeds are attended to for the first season or two, the lawn will come out all right in the end.

The Farmer's Grindstone.

R. G. NEWTON, DAKOTA.

Obtain a good stone weighing about one hundred pounds, medium grit, and a set of friction rollers. For the frame a two by eight pine joist, is as good as hard-wood. With a stone thirty inches across, cut two pieces thirty-eight inches long; dress them square, and cut two "gains," as in figure 1, a quarter of an inch deep and a trifle narrower than the thickness of the end pieces. The distance between the gains is about thirty-one inches. Set these pieces on edge, and fit the rollers in place. Cut the end pieces so they will drive snugly in the gains; if painted before driving together, the frame will last longer. Bore three or four holes through the side pieces at each end, and nail the parts firmly together. The four legs are made from a piece of scantling, two feet long and divided lengthwise,

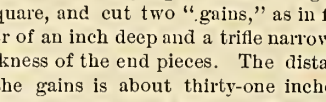


Fig. 1.—SIDE PIECES.

as shown in figure 2. The stone and frame complete are seen in figures 3 and 4. The upper ends of the legs are fitted on the frame, as shown in figure 4, and bolted and nailed as in figure 3. The treadle is hung on a half inch iron rod, passing through the two legs on right side of figure 4. A piece screwed on that end of the treadle and a hole bored through as in figure 5, will hold all the parts solid. The treadle can be connected to the small crank by a four-sixteenths inch iron rod bent as shown, the lower end being hooked into an eye in the treadle. To supply the stone with water, hang a pail or bucket over it with a faucet or plug in the side near the bottom. Use only sufficient water to keep the stone moist. A trough placed under the stone, as is sometimes seen, is a detriment to the stone, as the part standing in the water will soften and wear away much faster than the rest; it also washes the stone of loose grit, which, if retained, will cut as fast or faster than the solid stone, and

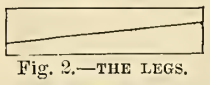


Fig. 2.—THE LEGS.

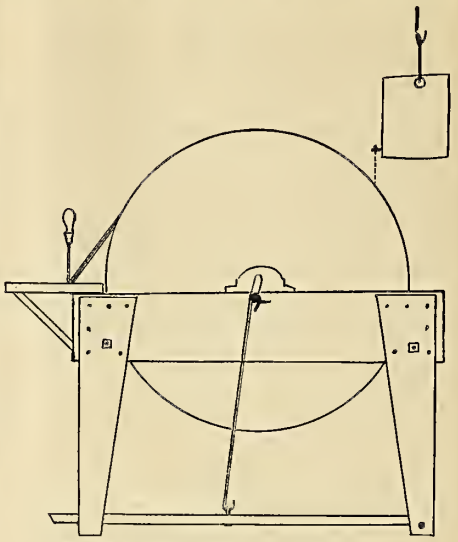


Fig. 3.—SIDE VIEW OF GRINDSTONE.

greatly lengthen the time the stone will wear. On the left of figure 3, is shown a shelf, which may be firmly nailed to the frame with a brace underneath.

To grind a plane iron with a true bevel, rest the lower end on this shelf as shown, and place a scratch awl firmly in the shelf where the end of the iron may rest against it. A chisel or similar tool can be held on the shelf by tacking or screwing on a block of wood in place of the scratch awl.

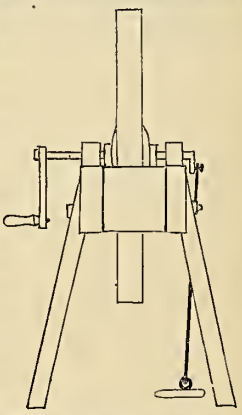


Fig. 4.—END OF GRINDSTONE.

To hang the stone on the shaft snugly, fit a piece of soft wood into the square hole in the stone; saw the ends off so it will be a trifle shorter than the thickness of the stone; draw lines with a pencil or awl from corner to corner, as shown in figure 6, and where the lines cross, place the point of the auger. Bore from both ends. Insert the shaft, and place on

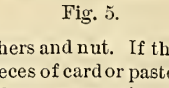


Fig. 5.



Fig. 6.

the washers and nut. If the stone does not run true, place pieces of card or paste-board between the stone and washer, on opposite sides, until it is adjusted.

To "true up" the face of a grindstone, use a piece of soft iron rod or gas pipe, about half an inch in diameter, and hold the lower end lightly, but firmly, against the stone, as shown in figure 7. Roll the iron on the rest, so as to remove a small cut at every revolution. Do this when the stone is dry. It will require some one to turn the stone steadily, as a person cannot work the treadle to advantage while "truing" the stone. Always keep the grindstone housed and in the best possible order.

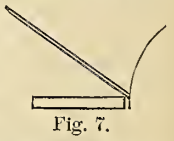


Fig. 7.

THE DUST BATH.—Every poultry house should have its dust box, in which the fowls can take a daily dust bath. This is essential to the well-being of the fowls. They will otherwise almost surely become infested with vermin. Fowls running at large provide themselves with the necessary dust in their covering of feathers, especially if they have access to a much travelled roadway. Lay in a supply of fine dust now, to be used when the fowls are confined to the house with only a restricted yard.

Walks and Talks on the Farm.

New Series.—No. 3.

If you do not know what else to sow, sow rye. Sow it at any time in August, September or October. Last year, as fast as we dug the potatoes, we plowed the land and sowed rye. It is a good crop to seed with. Sow Timothy, or Herds' grass, in the fall, and the clover in the spring. But if you do not want to seed down the land, it will do no harm to sow rye, and that whether you want to pasture it in the spring, mow it for green fodder, cure it for hay, or let it ripen its seed. The expense is little. Many farmers only sow a bushel of seed to the acre. I prefer to sow two bushels. I want the crop thick enough to smother the weeds.

I was on Mr. Loder's farm the other day. He has a silo, and soils his milch cows in summer. His first crop ready to cut in the spring is rye. As fast as the land is cleared of the rye, he plows it and drills in Southern corn in rows three feet apart. He keeps the crop clean with the horse-hoe, cuts it in the fall, and puts it into his silo. Last year the frost cut it for him, and the silo was empty. How would white mustard do for ensilage?

In my experience, the trouble with any second crop is to get the land moist and mellow. The first crop draws out all the moisture, and leaves the land hard to plow, and still harder to reduce into a mellow condition. Of course much depends upon the character of the land. Light sand and mucky soil are easily worked, and it is not difficult to grow one crop immediately after another.—"You mean," said the Deacon, "it is not difficult to get the land into good shape. You recollect planting corn after a crop of early cabbage plants. You got the land in fine condition, and though it was heavily manured in the spring for the cabbage plants, the corn was absolutely poverty stricken."

"That's all true, Deacon," I said, "and there is no fear of my forgetting it. It is one of the many agricultural facts that need explanation. There was manure enough, but it was not sufficiently available. The land perhaps lacked moisture. Moisture and shade would have favored nitrification of the organic matter of the soil and manure. A slight dressing of Nitrate of Soda and Superphosphate, might have given me a good crop."

"All your men," said the Deacon, "seem to have great faith in Nitrate of Soda."

"Probably," said I, "it will not pay on ordinary farm crops—certainly not on corn, oats and wheat, at the present prices—but the market gardener, seed grower, or nurseryman, who does not use it occasionally as an auxiliary, is not living up to his privileges. I am satisfied that it is a mistake to suppose that true science will not greatly aid the farmer, the fruit grower, the florist, the gardener and the nurseryman.

Farmers have to stand a good deal of abuse. It is said we use small barrels for packing our apples and potatoes. I do not think it was the farmers who introduced them, but rather the dealers and shippers. I know I stoutly opposed their use from the start. The farmer gets no advantage from them. The interest of the producer and consumer, sooner or later, is identical, and for my part, I should be glad to see all our barrels of one uniform size. Then we are accused of putting good apples on the top and bottom of the barrel, and poor ones in the middle. There is some truth in this. But it is not entirely the fault of the fruit grower. The apple buyers come and look at our crop while growing. One year I sold my crop to a dealer, and he was angry because I put just as good apples in the middle of the barrel, as on the top and bottom. "Why," said he, "I could take those same apples and make them worth half a dollar a barrel more." And he told me how to do it: "Pick your apples carefully. Do not sort them while picking. Place all the fruit from a dozen or more trees in a long heap. If there is danger of rain, cover them with bags or canvas. When you commence to barrel, set the barrels alongside of the heap, take out the heads and lay them with the top hoop opposite the barrels, so that they will not get mixed. You want to run three or four barrels at the same time. If the ground is soft, lay a wide plank alongside the heap for the barrels to stand on. You should have baskets that will go inside the barrel and turn over. Never pour apples into the barrel. Tell the men they must be even more careful than if handling eggs, and what is more important, see to it that they are careful. Do not leave them a moment.

"Pick out a basketful of the handsomest apples—those that are of good size, good shape, smooth, and high-colored, especially at the stem end. Place these apples with the stems down at the bottom of the barrel. Commence at the outside, and place a ring of apples all round the bottom of the barrel, and then another ring, until the bottom is compactly covered, as shown in the engraving. The second layer of apples should also be selected with care, and so placed in the barrel that they will look well when examined. Fill up the barrel with apples, and as each basket is emptied into the barrel, if you see any handsome apples, take them out and place them in a basket for 'liners.'

"Let the men who are picking up the apples at the heap, have a basket into which they can place handsome apples for liners, and after you are fairly started, and the first barrel is nearly full, top it off with handsome apples selected from the middle of the barrels that are being filled. Formerly buyers only examined the lined end or bottom of the barrel, but now they want to see both ends of the barrel. When the barrel is one-third full, or as soon as there is no danger of disturbing the liners at the bottom, give it a shake, and then afterwards, as each basketful is emptied in, give the barrel a shake, and when you see a good apple, pick it out for the top or bottom. On the other hand, as you approach the top, select out any light-colored or inferior apple you happen to see, and place it in the barrel alongside, that is about half full.



APPLES ARRANGED IN THE BARREL.

"Be sure and shake the barrels until the apples are as compact as possible. This is very important. Be careful to place the two top layers of apples in good style, and then lay on the head and press it down into its place. You do not want the barrels so full that the apples will be mashed in pressing, but they must be so full that when headed up the apples will not move in the barrel."

I am not apologizing for men who place poor, wormy fruit in the middle of the barrel. I only say that dealers like to have fruit packed as above described. At any rate, it is a fact that I was held up to ridicule by a large and experienced dealer because I put just as good apples in the center as on the top and bottom of the barrel. Farmers are not dishonest, and they are not going to lose the foreign market.

"It won't pay this year," said the Deacon, "to put poor apples into a barrel. Better sell them to the vinegar and evaporating establishments."—"It never pays," says I, "to barrel poor apples. It might pay very handsomely to carefully select the apples, and put only the very best into the barrel—top, bottom, and middle alike. But in such a case, as a rule, you must sell to the consumers and not to the dealers. The dealer will seldom pay more than his regular price. Probably the men he is buying for, limit him to a certain figure. A New York fruit man once came to me and said, he wanted a few barrels of choice apples, selected with the greatest care, and wrapped in tissue paper. He wanted them for a large dry-goods house, who sent them as Christmas presents to some of their manufacturing friends and correspondents abroad. For some years before his death, I used to furnish my old friend, Mr. Vick, Northern Spy apples for the same purpose, and I have heard him tell how much such apples would have brought on the other side if they were for sale. I am confident that if our apples get to Europe in poor condition, it is not the fault of farmers. At any rate, the remedy is in the hands of the exporters and dealers. Let the exporters tell us what they want, and we will meet their wishes. In the meantime let them stop abusing the farmer. If they want larger barrels they can have them; if they want good apples, carefully picked and packed, they can have them.

When people get tired of building telegraph lines and railroads, ditching and underdraining will have a little chance of securing the necessary capital and labor. A low rate of interest ought to enhance the value of improved farms.

The Deacon thinks many farmers keep too many horses. I do not think so. But it is certainly a mistake to let horses lie idle. After winter wheat is sown, the horses on many farms do not earn their feed. We are busy with fall work, and as there is no plowing that must be done, we prefer to let the horses stand in the barn rather than spare a man to drive them. It is a mistake. There is nothing pays so well as fall plowing, and getting land ready for spring sowing. The longer I live the more I am impressed with this fact. I say nothing on the disputed question in regard to breaking up sod-land in the autumn. It is possible, as some claim, that there is a loss from drainage. But if any one will plow my land in the fall, I will run the risk! But what I have specially in mind is, land not occupied with any crop—corn-land, potato-land, bean-land, stubble-land, and weed-land. Stick in the plow if you can spare the time; if not, harrow, or cultivate. Better still, do both. Light, sandy land, plowed and prepared in the autumn, can be sown in the spring without plowing. Heavy land, if plowed and worked in the fall, may need plowing again in the spring, but the work will be easier and the land better. Keep the horses busy until snow flies. But the earlier the work is done, the better. One plowing while the land is dry, is worth two plowings when it is wet.

It is discouraging work, plowing, harrowing, rolling, sowing, planting, and cultivating hard, clayey land, that needs underdraining. It will pay well to underdrain it. Such farms as John Johnston's and Robert J. Swan's, and many others, were originally almost worthless, and are now exceedingly productive and profitable. Go where you will, you see more or less of such hard and unproductive land on many farms. The remedy is underdraining. But if this cannot be done, seed it down to grass. It does not pay to work it.

One of the best implements for killing weeds is the mowing machine. If the land is so rough you are afraid to risk a new machine, take an old one.

Said the Doctor the other day, "Did you ever think what a comparatively small area of land there is in the world embraced in the grass belt? At first sight it seems strange, that the farmer who can grow grass should grow anything else." The Deacon smiled at this remark, but remained silent for some time. "Well," he said at length, "we do grow a good many weeds."—"Yes," replied the Doctor, "and it requires more plant-food to produce these coarse, rampant weeds, than to produce fine, nutritious grass. And aside from the difference in dollars and cents, what a beautiful country we should have if this rough, weedy land was seeded down with grass, and cut once or twice every year with the mowing machine. It would be an easy matter to scatter a little Timothy, or any other good grass seed on all the waste places in August and September, and this with the use of the mowing machine, and the scythe, or brush hook would greatly change the aspect of the country. I do not know how much seed it would require to the acre ('about a peck,' said the Deacon), but I know the seed is cheap, and it cannot but pay ten times over. I suppose it is not necessary to sow grain with the grass seed?"

"No," said I, "but when you want to seed down land with Timothy alone, it is well to sow plenty of seed. As the Deacon says, a peck to the acre is enough, but half a bushel will do no harm. On moist, mucky land, I have had a grand crop of Timothy hay the next year, from seeding alone in September—the earlier the better."—"A little rye," said the Deacon, "say half a bushel to the

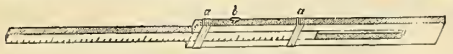
acre, does no harm, unless you want to sell the hay. For your own use, especially if the hay is chaffed and mixed with meal, or mill-feed, rye and Timothy, cut before the rye gets ripe, make excellent and economical fodder for horses."

"There is one thing," said the Doctor, "that our farmers are doing that is highly to be commended. Our roads are many of them four rods wide. Formerly when we did not know where else to put stones, brush, and weeds, they were dumped into the road. Now the practice is becoming quite general of turnpiking the road in the centre, drawing on more or less gravel, and keeping it smooth by the use of the road-scraper, and plowing and sowing the remaining land on each side."

I have seen the best of wheat growing close up to the traveled road, and the best of clover and grass the next year. It has a remarkably neat and thrifty appearance, adds greatly to the beauty of the country through which the roads run, and to the actual and selling value of the farms.

A Sliding Measuring-Rod.

The engraving represents a convenient device for measuring in places where a long pole can not be used. To make this measure, take a three-inch strip of straight-grained timber (hard-wood is best), and out of the center cut a slot with a rip-saw, an inch wide, running from the top, to within six



A MEASURING ROD.

inches of the bottom. Saw out a "tongue" to fit snugly into this slot, and mark the scale of inches and feet upon one side. If a twelve-foot pole is desired, make the piece containing the slot six and one-half feet long, and the tongue five and one-half feet. To hold the tongue in place, and keep the sides from separating, narrow zinc strips are fastened around the whole, but not so tightly as to prevent the tongue from working freely. These strips are marked *a*, *a*, in the cut, *b* representing a small thumb-screw to be turned against and hold the tongue, after it has been placed at the proper hight. As the length of the slot-piece is known, the measurement of an object is obtained by adding the slot-piece length to the number of feet and inches indicated by the scale on the tongue at the point where it enters the slot.

Autumn Care of Meadow Land.

Meadows should not be closely grazed at any time, and especially not in the fall. They need to have fertilizing materials added to instead of taken from the soil. Young animals are much more injurious than mature ones, while full-grown stock that are being fattened, and are fed rich grain rations, may by their droppings add materially to the fertility of the soil. Young-growing stock withhold a large share of the potash, phosphoric acid, and nitrogen of the food to build up their bodies, leaving the manure comparatively poor. On the other hand mature fattening animals need very little of these three chief elements of soil fertility. Aside from the loss of plant-food, the close feeding of stock on meadow land does mechanical damage. If the soil is soft, the feet of the animals injure it, and the close grazing pulls much of the grass up by the roots. Meadows, like winter grains, are injured by freezing and thawing, and the plants need to be in a vigorous condition in late fall, with a good growth of after-math for protection from the frosts, winds, etc. Well-rotted manure applied to the meadows as a top-dressing, will strengthen the plants and insure a fine crop the next season. This application is best when made soon after the hay is removed. Later in the season much of the soluble material is washed out of the soil by the fall rains. Quick-acting manures should be used in the growing season, otherwise loss is sustained. Take good care of the meadows, for they suffer greatly if abused. They are easily and often injured by animals in late autumn.



Bee Notes for September.

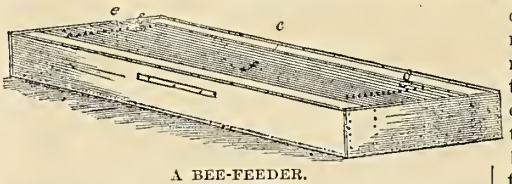
W. Z. HUTCHINSON.

If a few bees are seen entering the hive, it should be examined. Perhaps from some cause the colony is queenless; and unless proper attention be given, its stores will soon fall a prey to the bee-moths' larvæ, or to robbers. In localities where buckwheat or other field forage is abundant, bees sometimes swarm in the early part of September. By hiving such swarms, giving them sheets of comb foundation or empty combs, and perhaps supplying them with a frame or two of brood, they will usually build up fair colonies by winter, and will frequently be found among the best the succeeding year. Honey is a luxury. Many people do not go to the grocer expressly to buy honey, and only purchase it when seen. Comb honey is usually placed in a side glass case; and extracted honey too frequently is kept out of sight. Bee-keepers would do well to furnish each grocer with a neat stand, upon which to expose his extracted honey for sale. Nearly all extracted honey will soon begin to crystallize or "candy," and it should be placed in vessels in which it is to be stored. The writer markets his honey in small tin pails, varying in size from one pint to two quarts. These are filled with honey just as it begins to crystallize, and when solid, the pails have neat labels affixed, stating that crystallization is a good test of purity, and that a gentle heat will soon liquify the honey.

The present month is an excellent time to change the stock of bees. The main honey harvest is over, and if the colony remains queenless a few days, the loss is not great. The best queens are reared during the hight of the honey season, and can be bought very cheaply. Purchase queens of the nearest reliable breeders, as long journeys by mail often exhaust them of their vitality to an injurious extent. Queens need to be vigorous.

FALL FEEDING.—In the Middle States fall-feeding should usually be finished by October 1st, in order that the food may be ripened and sealed before cold weather comes. Granulated sugar, or "confectioners' A" are the least likely to be adulterated. The best way to secure pure sugar is through some reliable candy manufacturer. To prepare the syrup, add one quart of water to four pounds of sugar. Heat the mixture to boiling, and skim. Let the feeding be done as rapidly as possible, so that the bees will not be thereby stimulated to undue breeding.

A BEE-FEEDER.—An excellent bee-feeder is shown in the engraving. The feeder is as large as the top of the hive. The sides are four inches high, and made of well-seasoned half-inch pine boards. The bottom of the feeder is one inch



A BEE-FEEDER.

in thickness. A division-board, *c*, is fitted within the feeder about two inches from the right side, and extends upwards from the bottom board (to which it is joined), to within three-eighths inch of the top. The heads of the nails holding this board in place can be easily seen. The bees crawl up in the space between this division-board and the top of the feeder; then over the top of the division-board, and pass into the apartment containing the food. Another division-board, *e*, extends from the top of the feeder to within one-eighth inch of the bottom-board. When the feeder is in position upon the hive, the cover is moved back until its edge is even with the top of the division-board, *e*, when the food is poured into the space between the division-board and the board forming the outside of the feeder. The food passes under the division-board, and rises in the centre apartment of the feeder to which the bees have access. After the feeder is filled, the cover is drawn back to its original position. To give the bees a foothold, the center apartment is filled with little slats of wood one-fourth inch thick, and wide enough to reach within one-fourth inch of the bottom. These slats, the upper edges of which can be seen at *f*, are held in position by two rows of small wooden posts slipped down between them. These posts, the tops of which can be seen at *g*, *g*, are three-eighths-inch thick, and rest upon the bottom. The slats are tacked to the posts. The joints of the feeder are made water-tight by painting the edges of the boards with white lead, before nailing them together. With this feeder there is no escape of heat; no daubing of bees; no exposure of the food to incite robbing; and no bees escape from the colony when filling the feeder. The bees can take the food very rapidly, and a large amount of it may be given at one feeding.

Prepare for the Fairs.

Go to your fair, whether it be the State Fair, or that of the County, and by all means exhibit something. It will be safe for those, who propose to exhibit fruits and vegetables at the coming fairs, to assume that no provision will be made for them and to prepare before-hand. Common store boxes, such as may be had at a very small cost, can each be converted into two or three trays or flats. These, however rough they may be, by lining with cheap, white paper, will serve for the display of fruits. If lined merely with moss or freshly cut grass, they will serve for showing vegetables. If the premium schedule calls for a bushel or half bushel of potatoes or of apples, etc., these may be exhibited in receptacles made by cutting a half-barrel in two, and lining each tub thus made with white paper. Help decorate the "Floral Hall," the place in which the products of the garden are usually shown. Young evergreens are always welcome. Such trees, taken up from pastures or the edges of the woods, and set in nail-kegs with soil, will last as long as may be required, and greatly add to the general effect of the display of vegetables.

Rainfall and Distribution of our Grains.

Over ninety-two per cent of our wheat is grown where the annual rainfall is above twenty-five inches; sixty-two per cent where it is between thirty-five and fifty inches, and over twenty-eight per cent with an annual rainfall of forty to forty-five inches. The important wheat region of California has less than twenty-five inches annual rainfall, but the rains come at the most favorable time for the grain. Nearly half of all our wheat is grown where the rainfall during the growing season is not over twenty-five inches. Over sixty-five per cent of all our Indian corn grows where the spring and summer rains do not exceed twenty-eight inches, and ninety-eight per cent where it is between fifteen and thirty inches during the growing season. Corn is emphatically a hot weather plant, and will not thrive in Europe, where the summers have less bright sunshine, though the rainfall seems more favorable than in this country. Four-fifths of the national oat crop is grown where the mean annual rainfall is between thirty and forty inches, and the spring and summer rains range between fifteen and twenty-five inches. Oats like a cooler climate than corn. Barley has the widest range of climate of all cereals, and the greatest production is with an annual rainfall of fifteen to twenty inches—much less than that required by other grains. We are apt to overlook the importance of clouds when harvesting a crop, and even think rains a great inconvenience; yet without them during the growing season there would have been no golden grain.

Southdown Sheep.

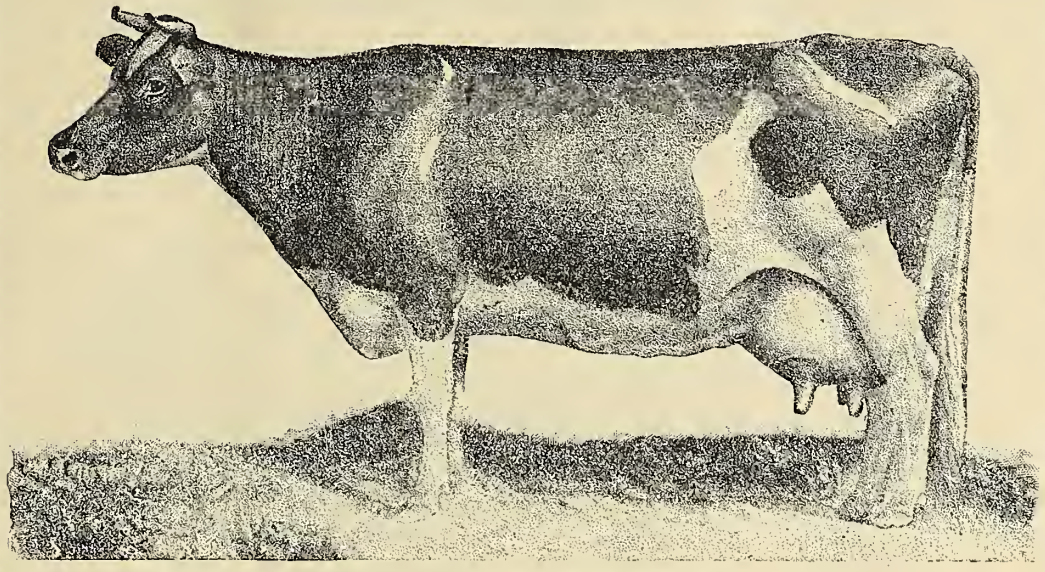
The Southdown is the most popular breed of mutton sheep in the world. The mutton is most excellent, and the wool of a quality in demand by the manufacturers of cloth. The growth of the animals is rapid, so that they may be early fattened either as lambs or mutton sheep, and besides they are quiet, hornless, hardy, and prolific. Other breeds surpass them in size, and quantity of wool, none in perfection of form, or in excellence of flesh. So true is this, that no butcher who has cut well-fed Southdown mutton will fail to recognize the blood even though in the second or third cross. The excellence of form in the Southdown is seen in its remarkable symmetry and squareness, in its length of body, breadth of loin, the broad hind-quarters, hight at the rump, lowness in the twist, and in the deep, thick hams. The brisket should be both prominent and deep, the fore-legs straight and wide apart, the belly-line level, and the flank as low as possible. The heads of the Southdown are small, of a gray, or brownish-gray color, well wooled between the eyes and across the poll. The wool, which should cover the belly, extends to the knees and hocks, and the legs are covered with dark, straight hair. They are naturally fine, but should be flat and not too delicate.

The Southdown belongs to the class of middle-wool sheep. The wool is of medium length and fineness, close and even, and forms a fine coat and protection against changes of weather and climate. It is no doubt owing in part to this that the Southdowns prove hardy wherever introduced. The breed has been made use of to improve other "Down" sheep, and these by offering lambs of larger size, which are quicker fit for market, may have in some cases advantage over the pure Southdown—the first improved, and by far the best of the breeds of the Downs. It would, however, be a mistake to suppose that the breeders of Southdowns in England are chiefly confined to the Counties of Kent and Surry, and that vicinity whence they sprung. They are now bred in all parts of England, and largely in this country. We see them, or their grades in the market, with their legs left with the skin on, to indicate the breed, and connoisseurs of mutton are thus attracted to buy.

"Holstein" Cattle.—A Famous Cow.

The cattle of the Netherlands are attracting more attention from the dairy farmers of the country than any other breed. For many years they have been carefully bred, with an aim to produce large quantities of milk. Doubtless the quality of the milk has been less an object with the breeders of Holland; but when well-fed cows give enormous quantities of milk, and the milk can be disposed of as such, the profit is almost invariably greater to the producer than if the quality were better and the quantity less. Besides, milk of low quality is poor in fat, but not necessarily poor in cheese substance. The districts whence they come, have always been famous for both cheese and butter, so that without further evidence our farmers might safely assume, that the milk was really rich in both butter and cheese. But we have other facts. The famous cow Mercedes, now dead, was the especial rival of the Jersey cow Mary Anne of St. Lambert, for the honor of being the greatest butter cow in the world, and the no less worthy and scarcely less famous heifer Jamaica, is credited as giving one hundred and three and one-quarter pounds of milk a day, and in a week as yielding twenty-six pounds three ounces of butter, while Ethelka gave eighty-one and one-half pounds of milk a day. These cows were neither of them four years old and with their second calves.

A breed with such possibilities, even though the average fall far below, is one upon which too great care can not be spent, with a view to both preservation of these inbred qualities, and to render them the more uniform inheritance of the race. The place in this country for the cows of this admirable breed, is in the great dairy regions, where cheese is the principal product, for notwithstanding the enormous butter yield of some "Holstein" cows, it may well be questioned whether as butter yielders they can be economically used.



THE HOLSTEIN COW "CROWN JEWEL."

We have not yet begun to test cows for their product of cheese, and though it is certain that individuals vary greatly, the popular idea is that the richness of milk in casein (cheese), is much less variable than its richness in butter. Great results, whether of milk or butter, cannot be produced without abundant feed, and as a rule large breeds of cattle or horses are best adapted to highly fertile sections, where from their very birth a healthful abundance prevails.

The grand cow, "Crown Jewel" (2690), whose portrait we reproduce from a litograph, was imported in September, 1882, as a five-year-old. She is now seven, and presumably in her prime. She is of the "blue blood" of Holland, at home bearing the name *Bootje*, and in the Netherland herd-book is number 592. She won the Sweep-stakes prize as the best cow of any age or breed at the Wageningen Show, and is said to have yielded before her importation to this country eighty-two and one-third pounds of milk in one day. The voyage across the Atlantic is a severe tax upon the constitution of any cow, and a year's rest is always needed before she gets fairly over it. During this year, imported cows must not only recuperate from the fatigues and bruises of the voyage, but encounter a new and changeable climate, of much greater severity of both heat and cold, than the one in which they were bred, and to it they must become not only accustomed, but acclimated. It



A GROUP OF CELEBRATED SOUTHDOWN RAMS.

Drawn and Engraved for the American Agriculturist.

is therefore very remarkable, that the first season in this country she should have so far regained her health and vigor, as to have produced in one day eighty-one pounds thirteen ounces of milk, in one month two thousand one hundred and nineteen pounds five ounces, and in one year, terminating in May last, fourteen thousand seven hundred and twenty-four pounds one ounce. This, it will be noticed, is equivalent to over seventy pounds of milk a day for the month, or thirty-four quarts, and to over forty pounds on an average, which is nearly twenty quarts, daily, throughout the year. This is certainly a most wonderful record. Such a quantity of milk, if of only moderate quality, must yield a good deal of butter, so we need not be surprised to learn, that she made nineteen pounds nine ounces of butter in one week, of excellent quality, texture, and color.

Apples for Exportation.—Small Barrels.

In his "Walks and Talks on the Farm" this month, Mr. Harris discusses the subject of packing apples. The dealers in this city have now organized a movement, the object of which is to induce the apple-growers of Western New York to pack their apples in flour barrels. For many years past, the legal apple barrel in this State is made to hold not less than one hundred quarts of wheat. This legal barrel is what the dealers now derisively term the "pony barrel," to distinguish it from the flour barrel. The latter holds about one hundred and twelve quarts, or one-seventh more apples than the legal barrel. In other words, if the fruit in the pony barrel is worth one dollar and forty cents, that in the flour barrel is worth one dollar and sixty cents.

A flour barrel is made to hold twenty-eight stone of flour, or one hundred and ninety-six pounds. Neither the millers, the dealers, nor the consumers ask to have it made to hold two hundred pounds. No one asks for a change. Taking it for granted, therefore, that the flour barrel size is to be the standard barrel, the apple dealers ask that apples be packed in barrels of this size. The dealers say, that the apple-growers in New England and in the Western States pack their fruit in flour barrels. And when they come to sell the apples, their customers naturally prefer the larger sized barrels. Furthermore they claim, that the charges for freight, cartage, storage, handling, and commission, are as much on the smaller as on the larger barrel, and these charges, especially on apples sent to Europe, are very high. We believe that all the apple-growers are perfectly willing to use the flour barrel size, provided the dealers will pay a proportionately increased price. Hitherto, when a farmer packed apples in a flour barrel, the dealers would not pay a cent more for them than for the smaller barrel. This the dealers themselves admit. They admit, furthermore, that if nine-tenths of the farmers in the vicinity of such shipping points as Lockport, Brockport, and Spencerport, should pack their apples in flour barrels, it is possible that transient buyers, who want only a few car-loads for such places as Harrisburgh, Pittsburgh, or Bradford, might come in and pay nearly or quite as much for the smaller as for the larger barrels of fruit. They have orders to buy a certain number of barrels at a given price—and a barrel is a barrel. Confessedly, therefore, the New York dealers cannot control this matter. And it will be unwise and unjust on their part, to hastily and arbitrarily endeavor to force farmers to make the change.

The winter apples grown in the vicinity of the Lakes and on the limestone soils of Western New York, are unsurpassed in quality. They keep well, and are admirably adapted for exportation. It is asserted, however, that these apples cannot be sold abroad, because they are carelessly and dishonestly packed in small barrels. We believe that this statement is exaggerated. It is true, that many of our apples reach the foreign market in bad condition. But the fault is not wholly due to the farmer. When apples are scarce and the demand likely to be brisk, the dealers get excited and take anything that is offered them. The careful, skillful, and honorable apple-grower gets no more for his fruit than his neighbor. The buyer gets his commission, and the apples are hurried forward to New York. To ship such apples as these, indiscriminately, to Europe is folly. To carelessly and hurriedly place thousands of barrels in a close, warm, unventilated steamer, to face the storms of the Atlantic, and expect them to keep well and sell well, can result only in disappointment and loss. For the dealers, smarting under their losses, to turn round and abuse the farmers is not unnatural, though it is very unjust.

The dealers and farmers must work amicably together in effecting a reform. The farmers have got good apples this year, and are able and willing to pack them in the best manner. It is not the size of the barrel that injures the reputation of apples abroad. It is the want of proper care in selecting and packing, and handling the fruit, and in securing cold, dry, well-ventilated room on board the steamer. Apples should receive as much care in this respect as dead meat. The subject is one well worthy the attention of steamship companies.

The Influence of Pollen.

ANDREW S. FULLER.

The effect of pollen upon the fruit and seeds of plants is a subject that has frequently engaged the attention of both practical and scientific horticulturists during the past score or two of years. All admit that pollen is an important factor in the production of seed. Furthermore, if there is seed, there must be some other organ present to support it—a fruit-stalk; an envelope to enclose it, as in the apple, pear, cherry, and similar fruits, or something to rest upon as in the strawberry, raspberry, and blackberry. Consequently we must admit that the influence of the pollen does necessarily extend beyond what we term the fruit or even the seed. Quite recently this subject has come up anew, and interesting discussions have followed at several meetings of horticulturists as well as in the columns of various agricultural and horticultural journals. Mr. J. T. Lovett, a successful cultivator of small fruits, claims that the influence of the pollen not only extends to the seed in the strawberry, but also has a decided effect in fixing the size, form, texture, and flavor of the fruit. While those who have given this subject close attention will agree to this, there are others who still doubt, even if they do not openly deny that the influence of the pollen extends as far as claimed. At the last meeting of the American Pomological Society this question was discussed, and a number of our leading strawberry-growers stated that the Manchester, which is a pistillate variety, was notably effected by the pollen-bearing variety employed for fertilization. The Secretary, Professor Beal, of Michigan, said at the close of the discussion: "This is an exceedingly interesting topic. If the results are as claimed by the former speakers, they are indeed wonderful. The edible portion of the strawberry is not a true fruit in the botanical sense, but a large torus or receptacle, which is the tip end of the flower stem, very much enlarged." We conclude that Professor Beal doubts the truth of what has been claimed for the influence of the pollen in the strawberry. We find the same influence exists in melons, squashes, cucumbers, and similar fruits, and often to such an extent that a choice and high-flavored variety is almost ruined by being planted near an inferior one. A more striking and familiar example of the influence of pollen is that of sweet corn fertilized by the pollen of field corn. If a yellow variety of field corn is planted near any variety of sweet corn, and both come into bloom at the same time, there will be yellow kernels interspersed among the grains of the sweet, and the flavor of these will be as distinct as their color. The influence of the pollen in this case, not only extends to size, color, texture, and flavor, but often still further, for the coloring matter will usually be seen in the cob. It will be the same with two white varieties, but the effect is more readily observed when one variety is either red or yellow.

A quarter of a century ago, when the Hovey was our best and most valuable pistillate strawberry, we conducted a series of experiments for the purpose of determining the influence of pollen on its fruit, but at that time there were so few persons making small fruits a specialty, that a man who attempted to talk of "influence of pollen" on a strawberry, would find that he had a small audience and not a very attentive one. But when writing the "Small Fruit Culturist," we inserted an epitome of the results of the investigations which appears to have been overlooked by most fellow-laborers in the same field, and we refer to them now, even at the risk of being thought egotistical. In the first Editon, 1867, page 44, we said: "But without presuming to advance a theory on the subject, we would suggest whether it is not possible that variations may have been made on growing plants, by the influence of the pollen from different varieties. It is generally supposed that no effect is produced except on the seeds, but as it is most conclusively proved in animal physiology that the female retains the effect of impregnation in her system for years, may not the same be true of plants, and the admixture or deterioration of one, and the improvement of another kind growing in close proximity, be caused by the absorption of qualities, each from the other. If the effect of the pollen reaches no further than the seed, why is not the fruit (receptacle) produced without them. But we find that wherever the pistils are not fertilized, the receptacle also fails, or if a portion only is supplied with pollen, then the receptacle is deformed in proportion. Remove one, two, or more pistils before they are fertilized, and the berry, just at that point fails to enlarge or come to maturity. No seed, no berry, is the rule."

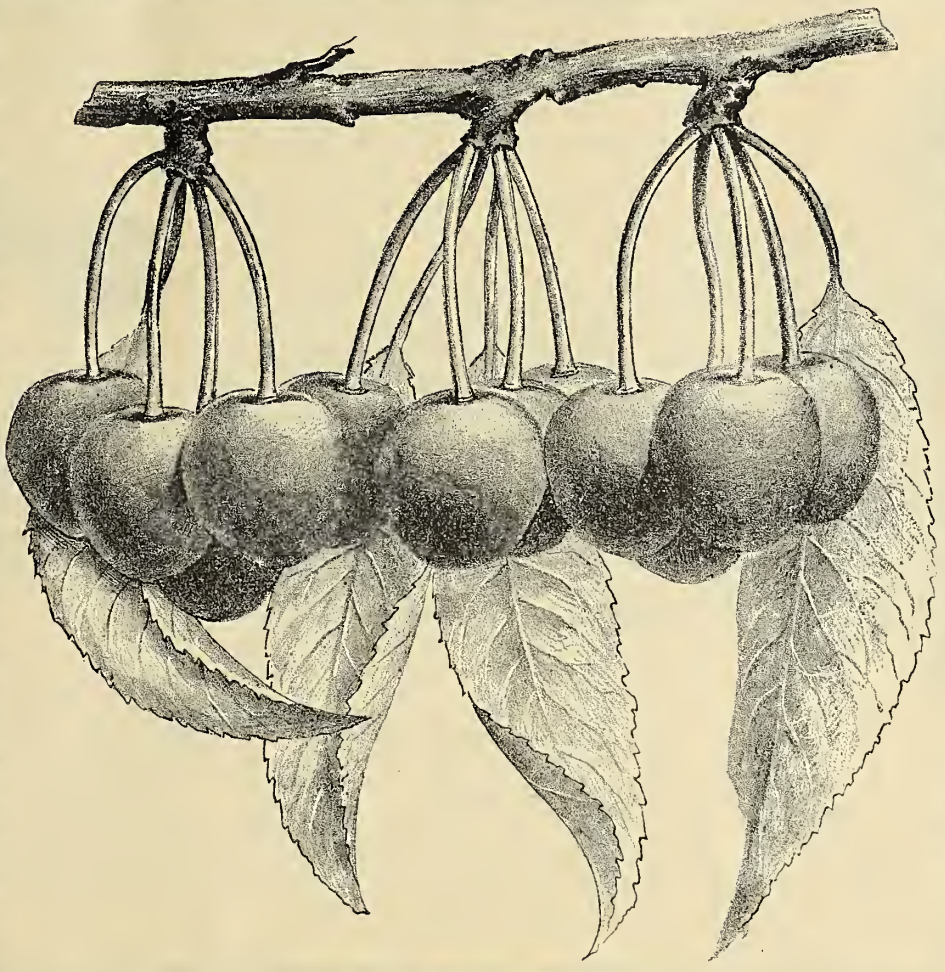
A Liquid Manure Cart.

A large part of the fertilizing elements of liquid manure go to waste, without provision is made for storing it and applying it to the soil. A brick-walled cistern holding several thousand gallons, can be built for about fifty dollars, and this will secure a constant supply of the best and quickest acting plant food. A cheap and substantial cart for spreading the liquid manure upon the land, is easily made. The box should be water-tight, provided with two tail-boards. The outer one has several holes bored in it, through which the liquid passes when the inner board is raised for a short distance. It is easy to make a water-tight box out of tongued and grooved stuff, fitted together with paint or tar. The box is hung upon a bent iron axle, to bring it near the ground. Persons with large lawns may keep them luxuriant during midsummer drouths, by using such a cart. Liquid manure produces its good effects upon vegetation at once, and needs therefore to be applied frequently and in small quantities. This is especially true if the soil has an open texture without retentive power.

ALL THE EGGS IN ONE BASKET.—We do not believe in it. The eggs may all be of excellent quality, and the basket strong and large enough to hold them, and yet we think it unwise to risk them all at once. There are many chances which a farmer must take, but he is rarely warranted in hazarding his present comforts in the hope of great gains. A man may invest all his capital in hops or cranberries, or some other special crop, and—lose. He may clog all the machinery of his farm operations, by going largely into grape-growing, when he might better have kept to his wheat. Farmers have been sold out by the sheriff because the horses possessed too much speed, and the race-track had greater fascinations than the corn-field. Some men run all to cider, have a mill to make it, and that is all they make. Others raise only hay, and sell it off the farm. Their eggs are all in one basket. Mixed husbandry, and not specialties, for American farmers wins in the long run.

A New Cherry.

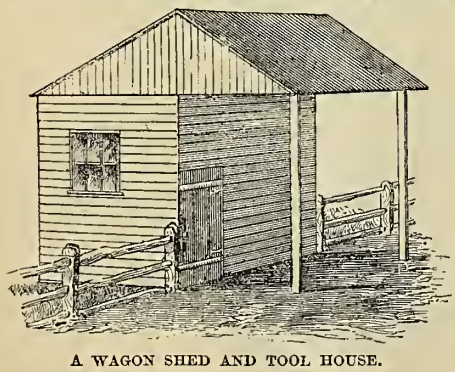
Mr. James Dougall, one of our subscribers living in Ontario, Canada, sends us specimens of a new seedling cherry named The Dougall, in honor of the raiser. It is a seedling of the Early Purple Guigne, a variety well known to fruit-growers as an early and profitable cherry. The fruit of The Dougall is ripe about a week before that of its parent, and is larger and finer flavored. The tree is noted for its hardiness and vigor of growth, and as being a most abundant bearer. The specimens sent us show its great fruitfulness, and also the large size and vigor of its foliage. The engraving, from a photograph, shows the cherry of its real size. The fruit is of the darkest purple-color, almost black, with a remarkably juicy flesh of great richness. We accidentally discovered a quality of the fruit for which the raiser makes no claim. It is a remarkable keeper. A number of loose cherries were, by chance, left in the box, and when discovered a week or more after their arrival, save a slight shrivelling of the skin, they were unchanged. There were no indications of decay. We hope The Dougall may retain the good qualities shown by the original tree. The "Windsor," another of Mr. D.'s seedlings, has already received the attention of fruit-growers. We are glad to see a renewed interest in the cherry, which of late years has been much neglected by fruit growers.



A NEW EARLY CHERRY—"THE DOUGALL."

Wagon Shed and Tool House.

Every farmer should provide shelter for his wagons and farm tools. The engraving shows a combined wagon shed and tool house, so constructed that a wagon can be drawn under at one end, and out at the other. The shed should be long enough to leave the door into the tool house free, when the wagon is housed. A place over the shed is convenient for storing many small articles. The location of the door enables one to unload articles into the tool house from the rear of the wagon. If it is desired to economize space, the wagon shed may be in the roadway, and the fence joined to the house on each side, as shown in the engraving given above. In this case, there should also be a door opening into the tool house from the yard.



A WAGON SHED AND TOOL HOUSE.

A SLED FOR DRAWING CORN-SHOCKS.—A sled suitable for removing corn-shocks from the field, is made of two hard-wood planks, fourteen or sixteen feet long, rounded at one end and joined by three stout cross-pieces. Short standards should be placed at both ends of the sled, to hold the corn in place. The two runners may be separated four or five feet, according to the length of the stalks. When corn is to be thus removed, the shocks should be made smaller than usual. After the corn has been curing a week or more, the team with the sled is driven alongside the shocks, when they are pushed over upon the sled until it is filled. The corn is easily set up again in another field or in the barn, and the corn ground is ready for the plow.

Care of the Work Team.

A poor work team makes farm operations more costly. Grooming is essential, as it gives rest to tired muscles. It is second only to proper food. It has been said: "A good grooming is worth four quarts of oats." Feed liberally, but do not overfeed. Feed regularly, and see that the team has its breakfast, dinner, and supper, before you have your own. It is poor policy to give horses no grain until they are about to do some hard job, or a season's hard work. Over-feeding with grain or grass, causes derangement of the digestion. Imperfect digestion means impaired usefulness in the long run. A horse will do more work on oats than on corn. Corn will prepare a horse for labor, but oats make a better ration during hard work. Oil and starch in corn make it an undesirable summer food; it is heating. Old hay, cut and mixed with bran or a little meal, makes a good work ration, if old hay is not plenty, feed newly cured clover or timothy. Give an occasional feed of roots, apples, and the like; they afford a variety and help digestion.

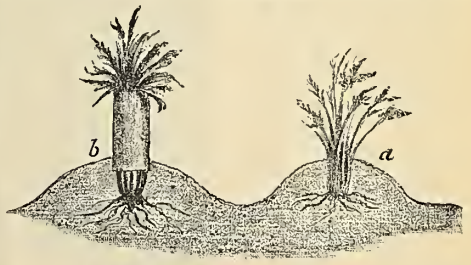
If at all possible, let the team during hard summer work drink once in the forenoon and once in the afternoon, besides at their regular meals. Judge them somewhat by yourself. See that the breast and shoulders do not chafe. To prevent it, take care to have well-fitting collars, and bathe the shoulders with cool water on returning from the field.

Sericulture in California.

Silk culture has been gaining surely and steadily in the confidence of our people for several years, and is evidently to be one of the leading industries of the future. Like most enterprises, it was begun by a few people of ability, but the greater number were over-sanguine parties, without any experience, who expected to reap a fortune in a short time. The rearing of silk-worms was begun in California about 1860, and soon after the industry grew rapidly. The best cocoons were first produced in Santa Clara County. Many persons not understanding sericulture, but intent on quantity rather than quality of product, placed millions of cocoons on the market, which were almost worthless, and wholly unfit for reeling. This done, a reaction began. It proved well nigh fatal to a project which should, ere this, have furnished profitable work to thousands of ladies and youth, who are now almost without employment. Even with so favorable an inauguration, the enterprise rested in the hands of only a faithful few, who, for several years, did little more than hold their own. Within the past few years silk culture has received a new impetus, owing in a large part to the enterprise and perseverance of the ladies. The industry is now under the fostering care of the State Board of Sericulture, consisting of nine members, five of whom are ladies. The rearing of cocoons and cultivating the mulberry are only in their infancy.

Drain Tiles for Blanching Celery.

Nothing is superior to drain tiles for blanching celery. The plants are hilled up as shown at *a*, in the engraving, and the tiles placed over them. Wrap a piece of stiff pasteboard around the plant, pressing the leaves together closely. Slip on the tile, and press the lower end into the soil as shown at *b*. Draw out the paste-board through the opening at the top. By this method celery can be grown in rows two feet or less apart, as only a little soil is required for earthing up. The leaves will generally fill the opening at the top of the tile sufficiently close to exclude light from the stalks.



TILES FOR BLANCHING CELERY.

Last season our celery came out of the tiles clean, white, and tender, the stalks being crisp and solid, while that of a neighbor, whose celery was earthed up in the ordinary way, rotted considerably before it was blanched. The economy of space alone will pay for the tiles in two years, to say nothing of the great saving in labor. If the tiles are carefully stored, they will last many years. F. G.

Salt-Water Farming.

One day this season we were strolling on the beach which extends along the east end of Long Island. A gray haze hung upon the great Atlantic,



"THERE SHE BLOWS!"

whose surges broke at our feet, and the sand-hills which shut out the shore-ward view fairly blazed in the sun. The arbors built for the shelter of the summer visitors, who make the beaches fashionable for a portion of the year, were dry and brown. There were some boats drawn far up on the sand, but no sign of human life was in view save what we provided in our solitary person tramping along on the wet beach, within the wash of the tide. Suddenly a man appeared on one of the sand-hills, close to a stout pine trunk which was planted on its summit. The man glanced seaward, sharply and swiftly. Then he ran up the post, to which cleats were nailed, with the agility of a practical seaman. With his arm crooked about the post at the very summit, he shaded his eyes and looked at the sea again. Following the direction of his glance, we fancied we could see a dark spot far off shore. As we looked, it vanished and a white spot took its place. A shrill voice, which seemed to come from the skies, rang in our ears: "There she blows!" — When we looked at the pole, the man upon its summit had his coat off and was waving it like mad, and within ten minutes time the solitary shore was all alive. Men in their shirt-sleeves, some even bare-headed, came swarming over the sand dunes and through the breaks in them, all with oars on their shoulders. The big boats were hauled down to the water's edge; from queer little huts like dog kennels, erected on the hillocks, harpoons, and tubs, and coils of line were brought out. Sitting under one of the arbors, we watched a whale-hunt to its end, which was the towing of the dead prize ashore, after an hour's hard battle. The whale was not brought ashore exactly at the spot from which the hunters had embarked, but some half a mile down the beach. There we found an enormous iron pot, mounted on a weather-beaten but still substantial brick furnace, on the crown of a low sand bluff. Having been beached opposite the furnace, the whale was hauled well up out of reach of the tide by powerful tackles attached to stout posts, and the captors, aided by other men and boys who had come down to watch the progress of the chase, proceeded to cut it up.

The furnace blazed all night, sending a red flare over the desolate beach, and crimsoning the cloud of heavy smoke the night wind tossed and rifted into fastastic forms. Around it the whalemen gathered, relieving one another in attending to the pot and feeding the fire, and spinning yarns. A curious gathering they formed indeed. Though every one had proved himself an expert fisherman and seaman, every one was a farmer, too. They represented that singular and interesting class, of which the eastern coast of the United States and the eastern end of Long Island especially, boast so many and such splendid examples—the "salt-water farmers" as they are appropriately called.

Tillers of both land and sea, their industry makes little distinction between the elements from which they draw their double harvest. They are as much at home with their feet on the frail bottoms of their boats, as on the soil they dig, and their hands are as ready at the oar as at the plow. Brave, energetic, tirelessly diligent, they live laborious lives, and deserve all the honor that belongs to honest toilers. The readiness with which the salt-water farmers exchange their labors from shore to sea, is explained by the fact, that on our eastern coast most boys begin life with some years on board the whalers or the fishing craft that distinguish the section. If they do not go a couple of long voyages on whalers, they make annual trips with the fishing fleet, working on the farm between seasons. Such of them as eventually settle to agricultural pursuits, continue to utilize their marine accomplishments to add to their income. Formerly the salt-water farmers found considerable profit in the menhaden fishery. They seined the fish and tried them out on shares, but of late years this business has been monopolized by steamers fitted out for this purpose. There remains to the salt-water farmers, however, the capture of food fishes and also an occasional whale.

When the blue-fish or other finny prizes begin to "run," that is, when they swarm into the contiguous waters with the season, the double industry



A SALT-WATER FARMER.

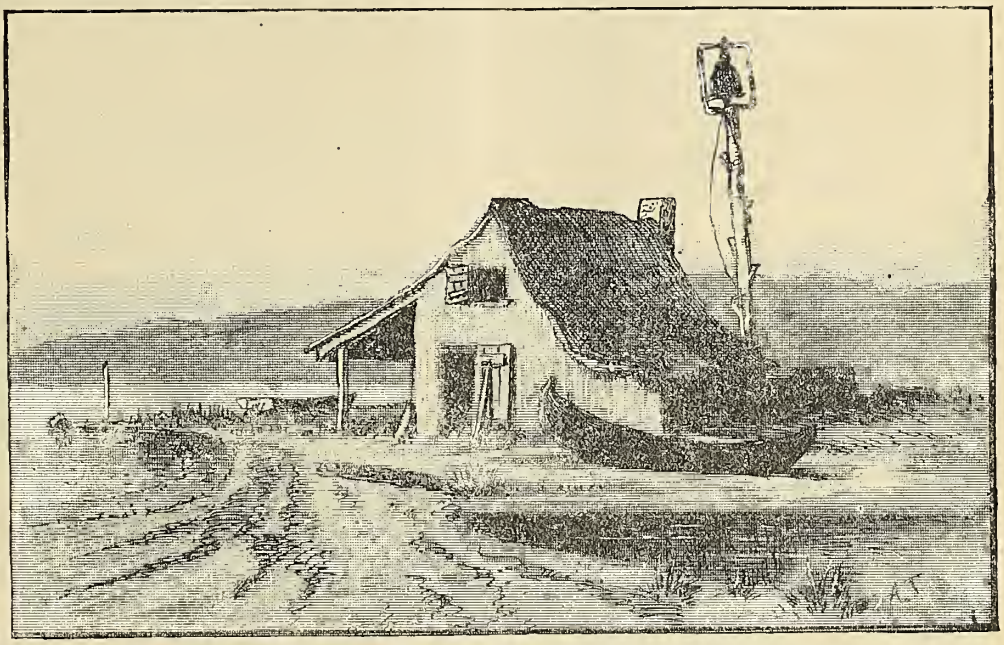
begins ashore. The farmers own large boats and good seines, and lose no opportunity of using them. Their captures supply the whole neighborhood and often add materially to the comforts of the captors. While there are many fine and productive farms upon the coast, there are far more which would afford their cultivators a poor living if the ever-changing sea did not eke out the parsimonious gifts of the poor, sandy soil.

The sea not only helps the farmer's purse, but it helps the land. The refuse of the fisheries goes to fertilize the soil. Though the competition of the steamers has destroyed the menhaden fishery on a small scale for its oil, the farmers still watch for the fish, net them and use them as manure. The abundant supply of food and other fish along our coast is one of the standard subjects of wonder and admiration with the foreigner. The deep is populated with untold millions of living creatures useful to man. Nature, which gave the farmer a comparatively sterile soil to extract a living from, seems to have added the gift of the ocean as a compensation for the shortcomings of the land. The farmer-fisheries are constructed on a simple and effective system. Whale-boats are owned in common, and their prizes are shared among their owners. Fishing boats are commonly kept on the same principle, and the owners of several farms thus share in the benefits of each successful fishery. Signal posts, such as the one from which we saw the discovery of the whale, are planted at certain intervals along the shore. An announcement of a prize in sight from one of these, calls all



THE MIDNIGHT HARVEST OF THE SEA.—*Drawn and Engraved for the American Agriculturist.*

the salt-water farmers within hail to the work, and in some sections an extra allowance of the gains of the fishery is given as a prize to the discoverer. The discoveries are by no means always accidental. When the season in which the fish "ruu" is at hand, the farmers begiu to find time from day to day to drop down to the beach and survey the water. An hour snatched from labor on the farm now and then, keeps oue or another on the watch from dawu until dark, and it is a lucky school of fish indeed which can escape the watch, unless it is so far off shore that the impression its movement makes on the water cannot be seen. Eternal vigilance and eternal labor are the sea-farmer's lot, for the earth and sea must both be worked to make his existence comfortable. But it is a hardy life, and produces such men as one rarely sees in the restricted atmosphere of towns or on the fertile prairie, men with whom truth, frugality, and virtue are native, and whose hearts are as sound as the muscles which drive the plowshare deep, and pull the oar steadily and long.



THE SHORE FARMER'S HUT.—*Drawn and Engraved for the American Agriculturist.*

Law For Farmers—Hiring Farm Help.

H. A. HAIGH.

The law governing the relation of master and servant is of much importance to farmers, for one of their most perplexing duties, out of which arises oftentimes most serious liabilities, is that of procuring and keeping necessary farm help.

CONTRACT OF HIRING.—The relation of master and servant always arises out of a contract, either express or implied, and the capacity of the parties to make a binding contract often determines their respective rights. Where a farmer hires a man for a definite term of service, and for a definite rate of wages, to do a specified kind of work, the contract is express. But where the farmer simply requests the man to work for him, and nothing is said about the time or pay, or where the relation of employer and employé is formed without a full and definite understanding, the contract is implied, and its lacking terms or conditions must be supplied by law. A contract of hiring for one year or less, need not be in writing. If for more than a year, it is not binding unless in writing, and either party can terminate the agreement at pleasure.

EXPRESS CONTRACTS.—Where the hiring is for a definite time, both parties are bound by it until the time expires. The employer must furnish work, and the employé must labor to the end. If the master discharges the workman without legal cause before the time expires, the workman will be entitled to his wages up to the time of his discharge, and also such damages as he has suffered by being thrown out of his job. These damages will probably be the amount of the wages up to the end of the time of hiring, less what the workman has earned or might have earned at other employment. If the workman leaves without legal cause before his time is up, the great weight of authority is that he is not entitled to any compensation for the time that he has worked, though several highly respectable Courts have held that under such circumstances he has the right to the wages due him up to the time of leaving, less the damages occasioned to his employer by his leaving. The question as to what is a legal cause for discharging and for leaving thus becomes important. It is difficult to state concisely what under all circumstances will amount to a legal cause for doing each of these things, but briefly it may be said that if the employer does not treat the workman humanely, does not employ him reasonably and in lawful pursuits, if he subjects him to perils and dangers not incident to the employment for which he hired, or places him under immoral influences, or fails to furnish him suitable lodging or wholesome food, then the servant is justified in leaving. If on the other hand the servant fails to faithfully serve the master, or to obey his reasonable commands, or to treat him respectfully, or to discharge his duties honestly and with ordinary care, or if he is found not to possess the requisite skill to perform service for which he hired, then the master has legal cause for discharging him. If the servant is prevented from completing his contract by sickness, or death, or by being discharged—rightfully or otherwise—he is entitled to reasonable compensation for what he has actually done.



AT THE BOILER, AND SPINNING THE YARNS.—*Drawn and Engraved for the American Agriculturist.*

If the hiring is for a definite time, and the rate of wages is at so much a day, week, or month, but nothing is said about the time of payment, the wages are not due until the end of the term, unless there is a general or special custom to the contrary. When the wages are to be paid monthly or quarterly, or at other stated periods, a failure on the part of the employer to pay at such time, is good cause for the employé's leaving, and he may, if he chooses, abandon the service of the one who does not pay and recover the amount due.

IMPLIED CONTRACTS.—Where services are rendered at the request of the employer, but no promise is made by him as to what wages he will pay, the law implies a promise on his part to pay the "going" rate of wages for that kind of service, but if the work is of a kind of which no current rate exists, then the employé is entitled to what the work done is reasonably worth. If nothing is said or implied concerning the time of service either party may terminate the relation whenever he chooses without any liability to the other for any damage so caused. Where services are rendered without any request for them, but under such circumstances as lead the workman to expect pay for them, or if the person for whom the services are rendered has reason to believe that the person rendering them expects pay for them, and he allows the workman in either case to labor under that expectation, the law will imply a promise to pay what the services are reasonably worth. A man cannot continue to accept services for which pay is expected, and then avoid paying for them. Silence under those circumstances will amount to a consent to pay. A man is never obliged to pay for services that are obtruded upon him.

Animal Ailments.

PROFESSOR D. D. SLADE, HARVARD UNIVERSITY.

EFFECTS OF GREEN RYE ON MARES.—M. S. Griscom, San Saba Co., Texas, asks whether the feeding of green rye to mares prevents them from getting in foal, or causes them to lose their colts.—As regards the first query, we answer unhesitatingly no. To the second we say, it would only act indirectly by causing disturbance of the digestive organs, if given in large quantities, and thus interfere with the process of gestation. The chances of such a result are, however, very small. Ergoted or diseased seeds of rye are liable to produce abortion in all stock, and at any period of pregnancy, and great care should be taken to keep animals from feeding upon it.

GESTATION IN MARES.—S. H. Puckett, Ouachita Co., La.—The gestatory term of mares extends from eleven to twelve months, these two terms forming the extremes. Careful observations made in France upon five hundred and eighty-two mares, which received the horse only once (a circumstance that prevented all mistakes in the matter), showed that the shortest period of pregnancy was two hundred and eighty-seven days, and the longest period was four hundred and nineteen days, making a difference of one hundred and thirty-two days, and eighty-nine days beyond the usual period of eleven months.

STARTING AND PLUNGING OF HORSES.—J. L. Pilkington, Queens Co., N. Y., has a horse that starts violently, leaping and plunging when put into harness, and asks if some kind of bit will keep him under control.—As this habit or vice is the result of bad breaking in, together with perhaps an ugly disposition on the part of the animal, nothing but patience, firmness, and kindness can correct it. The horse should be harnessed to a vehicle, in which he can do no harm to himself or the driver, and taught, above all things, that he has nothing to fear. Proceed with the utmost patience to teach him to stand still first, and then to walk quietly. Make use of a simple, strong bit, and one which can afflict no injury to the mouth. Many horses will resist a powerful curb, that will go quietly with a plain snaffle. Coolness, patience, and kindness will overcome the fractious spirit.

CONTRACTED FOOT.—The same correspondent asks, if a shrunken or contracted foot should be considered as any detriment to a horse.—It is not unusual for one foot to be smaller than the others, either as a result of previous inflammation, or as a natural condition. A contracted foot is to be regarded with suspicion, as it is liable at any time to give rise to serious trouble. A foot that is naturally smaller than the others, need not cause any apprehension, and could only be considered as a blemish.

COLD HORNS.—H. J. Heininger, Washtenaw Co , Mich., complains that two of his cows in milk have cold horns a greater portion of the time, and yet are otherwise in good condition.—The circulation of blood in animals may naturally vary as it does in man, and we can not conceive that any coldness of the horns, when the animal is otherwise well, is any evidence of disease, or is susceptible of any treatment beyond giving abundant and nutritious food, which in turn would be the surest way of increasing the flow of milk. Leave the condition powders and turpentine for cases which need them.

SWELLING AFTER CASTRATION.—K. H. Kenny, Spokan Co., W. T.—"Well informed people" no longer make use of the "sign" in the castration of animals. Swelling of the neighboring tissues is a frequent sequence to castration in young animals, owing to imprisoned matter, or to effusion of bloody fluid. In the first case, re-open the wound with the fingers, or by a blunt instrument, and in the second place, trust to the natural absorption of fluid.

ABORTION IN COWS.—J. R. Moeller, Hall Co., Nebraska.—The causes of abortion, or premature delivery, are various and widely different in their nature. Among the most frequent are blows, slips, falls, or any violence which may destroy the fœtus; improper food, or bad water, which may produce irritation of the bowels, and long and fatiguing journeys. Decomposing animal matter, especially the abortive discharges of neighboring cows, the use of ergoted food and smutty corn, may also cause abortion. The best preventive is to avoid all the above causes, not to breed at too early an age, and to allow several periods of heat to pass before the animal is again served. Any animal that once aborts, is liable to a recurrence of the same accident. Keep the stock in the best possible condition, by attention to diet, and to proper ventilation of the building in which they are kept.

HOOVE OR BLOATING IN CATTLE.—Wilhide Brothers, Carroll Co., Md., and C. Hoffman, Dauphin Co., Pa., ask us for information in regard to bloating.—This condition is produced by filling the paunch with food to such a degree that the muscular action is interfered with, and digestion prevented. The mass of food consequently ferments, and gives rise to gases which distend the paunch still further, until the organ bursts, the animal suffocates, or relief is afforded. Certain kinds of food, such as clover wet with dew or rain, uncured grain, veteches, heavy growing weeds, etc., when eaten to excess by young animals, are very liable to cause the disease. The animal in its greediness eats to satiety, and the act of rumination is, as it were, forgotten for the time. The preventive treatment is, not to allow access to such food, without exercising great care as to the amount eaten. In the early stages, when the bloating has just commenced, continued exercise, or the dashing of cold water upon the body, may afford relief. At the same time give a pint of soapsuds of moderate strength, or an equal quantity of a solution made as follows: Take half an ounce of chloride of lime, and rub it down in a mortar, with a little water to a creamy fluid, the remaining water being added, the dose may be given at once. If no relief is obtained, a hollow probang should be passed down the gullet into the stomach, which will allow the escape of gas. In urgent cases, the paunch must be punctured, which is easily done by any sharp pointed instrument, and the wound kept open until the fermentation has ceased. The most suitable instrument for this purpose is the trochar, which should be plunged inward and downward, into the distended paunch, in the left side, half way between the hip-bone and the last rib, and at about a hand's breadth below the spinal bones. Withdraw the trochar, and allow the canula to remain in the opening, until the cure is effected. A dose of salts is often necessary to carry off undigested food. The stomach pump, proper probang and a trochar, are necessary articles to be kept in every well-conducted stock establishment.

The Pecan-Nut.

The Pecan-nut (*Carya olivæformis*) is a perfectly hardy tree in south-eastern Virginia, and thrives as well, apparently, as its near relative, the Hickory. We know of several trees, some of them now about fifty or sixty years old; and there are many scattered through the adjoining counties. The nuts from these trees are in all respects—size, flavor, and thinness of shell—the equal of the best Texas pecan. We doubt not the pecan would thrive well anywhere along the coast as far north as Maryland, Delaware, and Southern New Jersey. Here the tree fruits annually, and is generally very prolific. A dozen trees would yield quite a handsome income. Every farmer could have that many trees, growing here and there in odd nooks and out-of-the-way places, though of course it would be better and more convenient to have them all growing together in an orchard. The tree makes good shade, is ornamental, and would make a handsome appearance planted in rows on either side of broad avenues, so often seen in country towns and villages in the old Colonial States.

We recommend the culture of this tree very highly, as being likely to prove profitable from the Potomac and Ohio rivers southward, and in some sections considerably to the north of those rivers. It is not the most valuable of the nut-bearing trees. The European walnut and the almond, both of which will grow and fruit in this section, surpass the pecan in our estimation. Our native white walnut, and especially the chestnut, are superior, to say nothing of the high value of the timber of both these trees. The pecan is well worthy a place in any collection of nut-bearing trees, and certainly every farmer would do well to have his nut-grove, as a source of profit. We are taking steps to establish a nut-orchard of all varieties. B. W. JONES.

Good Words for the Bartlett.—Mr. W. Fulmer, Allegheny Co., Pa., writes us: "In the July *American Agriculturist*, Mr. Theodore Goodrich, after giving his experience with a few varieties of pears, jumps at the conclusion, that the Bartlett is a "universally short-lived" variety. While the Bartlett may be more subject to blight in his section than most varieties, that does not prove it is universally fated. In 1874 we planted a small pear orchard of the following varieties: Bartlett, Clapp's Favorite, Flemish Beauty, Sheldon, Beurre d'Anjou, Beurre Bosc, Seckel, Lawrence, and Duchess. Of the Bartlett, Sheldon, Beurre d'Anjou, Seckel, and Lawrence, we have not lost a tree from blight. Of the other varieties we have lost, from blight, eighty per cent of Clapp's Favorite, ten per cent of Flemish Beauty, eighty per cent of Beurre Bosc, and fifty per cent of Duchess. In extensive pear orchards near here, there are about four hundred Bartlett trees, and of these not more than one per cent have suffered from blight in the last three years. Plant for general crop the varieties that succeed best in your own neighborhood, and in your own kind of soil.



OUR BASKET.

Bone Dust on a Pasture.—C. H. Dent, Fayette Co., Pa.—It makes little or no difference whether bone is applied in fall or in spring; if more convenient to sow it in autumn, it may be done without risk of loss.

Carrying Eggs to Market.—Mr. W. D. Hazer, Lancaster Co., Neb., writes us, that he carries his eggs to market in baskets, which he suspends from hooks on the underside of the high spring seat of the "lumber" wagon. In this way he has no trouble from broken eggs.

A Grass found in Clover. — W. A. Cate, Blount Co., Tenn.—The grass that is new to you is the Meadow Oat Grass, or Tall Meadow Oat Grass (*Arrhenatherum avenaceum*), a most valuable species, whether for meadow or pasture. Especially adapted to the Southern States, and should be better known.

Killing Ants.—H. Hinck, Plaquemines Co., La.—In asking how to kill ants, you fail to say whether they are in the house, or have their nests in the ground. In the latter case, we should try fresh Pyrethrum powder in and around the holes. One correspondent advises to make a hole in the nest and pour in gas tar. Another advocates camphor.

Losses Among Sheep. — The annual losses among sheep in Colorado over one year old from disease, winter and other storms, wild animals, poisonous weeds, snake bites, and old age, are eight per cent. Scab is one of the most troublesome diseases. Wild cats, coyotes, and black eagles are annoying on the prairie lands, while larger animals prey upon the flocks among the foot-hills.

What do you think of Catalpa?—This question is asked by a number of western subscribers. We know of no other tree that will give such durable wood in so short a time. It would be a mistake to plant the Catalpa to the exclusion of other trees, but it has most valuable qualities, and should be grown wherever the winters are not too severe. The recently recognized *C. speciosa*, is claimed the hardier of the two species.

Killing Live-for-ever.—J. Purdy, Fairfield Co., Conn., writes us: "I have a hand cider mill, I also have Live-for-ever, and a far worse weed, which we call "Adder's-tongue." Some call it "Snap Dragon," and others "Wench-weed." My method is this: After all the juice is out of the pomace, I cover the clumps of the weed with it to the depth of six or seven inches. It will surely kill Live-for-ever.

Paper Making from Wood.—Very few have any idea of the extent to which wood enters into the composition of paper. We have a number of mills for the conversion of wood into pulp, but Norway appears to be the important centre of this manufacture. According to an official report, the exportation of wood paper pulp was in 1875 about eight and a half millions of tons. The quantity exported in 1882 had risen to a little over fifty-nine millions of tons!

What Incubator Shall I Buy!—There are excellent reasons for our not recommending any particular kind of Incubator. The essentials are an equable temperature maintained with little variation; air charged with a sufficient quantity of moisture; ventilation without drafts of changeable temperature; a convenient mode of handling and turning the eggs, and a system of heating whereby the products of combustion are not discharged into the egg-chamber. The beginner should try a one hundred-egg machine, rather than a larger one, and be willing to look after details.

The Steam Plow Outdone.—American farmers have been very slow to adopt the steam plow. Perhaps this was because they were waiting for something better. An inventor claims to have invented a machine to plow by wind power. A sixty-horse-power machine will draw ten plows four miles an hour, and plow four acres an hour, with only one man to manage it. It is rigged with large windmill sails, and besides doing wonders in the field, furnishes stationary power for threshing, grinding, and other operations, and can carry many passengers on the road. The name of this wonderful machine and that of the inventor are not given.

A Grass that Promises to be Valuable.—S. C. Wakefield, Westmoreland Co., Pa. The specimen sent us is the Meadow Fescue (*Festuca elatior*), a species much valued in England as a pasture and meadow grass, but which has received very little attention in this country, though it is found in most of the grass-lands in the older States. The seed of this grass is kept by the leading dealers in farm seeds; about twenty-five pounds are sown to the acre. This species of fescue succeeds best on moist soils, is very nutritious, and yields a remarkably heavy after-math.

Value of Ashes.—Mr. Johnson, Oswego Co., N. Y. Wood ashes is a valuable fertilizer, especially for soils needing potash. Unleached ashes contains seven to ten per cent of potash, and two per cent of phosphoric acid. When thoroughly leached, the potash is reduced to two per cent and less. All wood ashes should be saved, and, if not used for ley in soap-making, apply it to the soil before any rains have washed from it the very soluble salts of potash, which are important food elements of all crops. Coal ashes contains but little potash, and its benefits to land are mostly mechanical. It loosens up compact, clayey soils.

The Use of Gas-lime as an Insecticide.—Mr. H. F. Moore, a distinguished agricultural writer in England, in a recent address to the farmers of Frome, upon injurious insects, gave the following upon the use of gas lime in preventing the attacks of insects: "For nearly all crops a good preventive preparation of the land is a dressing of spent gas lime, which should be put on in the autumn and dug or plowed in. If used fresh from the gas works it must be put on when no crop is in, but if allowed to stand and lose its causticity, it is perfectly harmless. It will kill nearly everything, but the earth soon destroys its causticity, and then in the form of gypsum it is a valuable manure.

Postage Rates Reduced.—One cent for each four ounces or fraction thereof, is now the postage rate on newspapers and periodicals of the second class, when sent by mail by other persons than publishers or news agents, postage to be prepaid by stamps affixed. The postal rates on such publications, thus sent, has heretofore been one cent for each two ounces, the reduction being one-half; but it should be observed that this reduction applies only to publications of the second class, which embraces only "newspapers, magazines, and other periodicals issued at stated intervals not exceeding three months, dated and numbered, having a list of legitimate subscribers, and not designed primarily for advertising purposes."

Tomatoes and Tomato Seed.—R. G. Newton, Dakota Terr., writes us that when the "Trophy" first came out, he procured a packet of seeds from headquarters, and by care in selecting the fruit and saving seed, he has the "Trophy" in perfection. The plants are raised in the usual manner; when set out, they are furnished with stakes four feet high, and are trained to a single stem. Each plant gives from three to six clusters of fruit, of three to six tomatoes each. The largest and smoothest fruits are allowed to ripen thoroughly, and before using for the table, the small quantities of seed they contain are scooped out, mixed with water, and allowed to stand a few days; when fermentation takes place, the seeds are washed clean, spread on paper and dried.

Fight the Potato Beetle to the Last.—The fecundity of the potato beetle is enormous. Some insects, that prey upon the farmer's crops, are troublesome for only a few days or weeks, but this pest comes as soon as the potato tops are in sight, and, if unmolested, continues to devour and breed, until the vines have ceased to grow. Last year the beetles had abundant feed up to the close of the season. Farmers have learned to fight them with Paris Green and London Purple through all the early part of their growth, until they think the crop is secure. There is too often utter neglect of the crop in August and September, and the vines are pulled in harvest quite full of beetles and their slugs. Killing them with thumb and finger, or picking and burning, seemed to make little impression upon them. We do not take any stock in the idea advanced by lazy farmers, that this pest is to have its day, and die out in a few years. Insects, like other creatures, follow the feed, and as long as we cultivate potatoes, we shall have to fight the beetle. The let-alone policy is too expensive to follow. The experience of this season should rub the doctrine into our bones, that the campaign lasts the whole summer. Every slug that is left to mature makes work for next year. If he is buried in the pile of green vines, he still feeds, matures, burrows, and rises again, and it is not "the resurrection of the just." If you would gain the victory over the legions of Doryphora, there is to be no discharge in your warfare.

Chat with Readers.

Calceolarias do not Flourish.—*E. O. Rockland*, Norfolk Co., Mass. Calceolarias require no special treatment, other than to be kept as cool as may be, and to be supplied with water in abundance.

Seeding a Wood Lot.—*L. A. Jones*, Jefferson Co., N. Y.—A wood lot kept free from underbrush and used as a pasture, may have its turf much improved by raking and burning all brush, and sowing a mixture of Orchard and Blue grass seed.

Fall in Tile Drains.—*E. A. Miller*, Shiawassee Co., Mich.—It is almost impossible to avoid some variation in the grade of tile drains. When a drain changes its grade from three inches to two inches fall to the rod, there will be no danger of sediment collecting, provided there is abundant flow of water.

The Name of a Grass.—*G. E. Tilley*, Queens Co., N. Y. The grass is *Bromus secalinus*, the well-known Chess or Cheat. You probably will not find the seed at the stores, as it is a troublesome weed. Being a rather showy grass, attempts have been made to introduce it under other names, but without success. While animals will eat it if they can get nothing else, they prefer swale hay.

The Blueberry Fungus.—*C. Forkert*, Middlesex Co., Mass.—The curiosity which you find growing on the blueberry branch is due to a minute parasitic plant, that attacks the young stem and causes it to assume a very strange shape. The microscopic plant thus preying upon the blueberry belongs to the same group as the mushroom, toadstools, and the various rusts, smuts, and mildews of grains, fruits, etc.

The Blight in Apple Trees.—*W. Angus*, Douglas Co., Mich., and others. As nothing positive is known about those disastrous visitations to fruit trees, called Blight, no remedy has been found. It will be very severe in a locality, and then completely disappear and not be seen again for years. To cut away the affected part, back to sound wood that is not discolored, whether it takes much or little, is the only advice that can be given.

Trouble with Melon Vines.—*J. H. Emmond*, Harford Co., Md., writes us, that the leaves of his canteloupe and water-melon vines are drying up, and applications of sulphur do no good. The roots of the vines are probably attacked by the larvæ of the common striped beetle. They are whitish "worms," a third of an inch long. Pull up the wilted plants, and destroy the pest, otherwise the attacked vines will soon die, and the enemy escape to breed destruction the next season.

About Vines.—*J. W. Watson*, Polk Co., Neb. Virginia Creeper (*Ampelopsis*), Climbing Bittersweet (*Celastrus scandens*) and Virgin's Bower (*Clematis Virginiana*), are all so common in the Eastern States, that one who wished them there, would not have to go far before he found an abundance. You can procure the vines at any nursery that keeps a general assortment of climbers. They are all perennials, and after they are once planted, will increase in luxuriance from year to year.

Trouble with Peach Trees.—*G. W. Gerrit*, Wilmington Co., N. C. From your description there is little doubt that that dreaded disease, the Yellows, has appeared in your orchard. The disease is still under investigation by scientific men, and probably the cause may ultimately be discovered. In the mean time, as trees badly affected will probably not recover, the safer way with these is, to dig up and burn them. Both potash salts and lime have been suggested as remedies.

The Wheat Weevil.—*J. L. Munda*, Monroe Co., N. Y.—The little pest of your granary is the Wheat Weevil, a beetle one-eighth of an inch long. The eggs are deposited on the grain after it is placed in the bin, and soon hatching, the grub eats its way into the interior of the grains. If the granary is badly infested, it may be best to change the place of storage. Sulphur fumigation is an effective remedy, but must be applied with great care. Thoroughly clean every crack and corner of the granary before another crop of grain is stored in it.

Trouble with Raspberries.—*W. Meredith*, Erie Co., N. Y., writes us: "The tops of the raspberry shoots which are to bear next year are cut down for six inches or more in a single day, and the next morning appear as if scalded for that distance, the tops being left to wither and decay." The trouble is evidently due to some insect, there being several that attack the canes of the raspberry, and the related blackberry. If upon examination a borer or grub of any kind is found, remove the injured tips of the shoots and burn them. This will prevent the increase of the insect.

Catalpa Seed.—*W. S. Thomas*, Lewis Co., Mo. The seeds are ripe when the leaves fall. The pods should be gathered, and the seeds kept in them until spring, when they are to be sown. Make shallow drills, their distance apart being governed by the manner of working, whether by cultivator or hand-hoe. Distribute the seed thinly, cover lightly, pressing the soil firmly upon them. When the plants are well up, thin to four to six inches apart, and keep them free of weeds. They will usually be large enough to transplant the following spring.

Fire-Proof Compound Elastic Paint.—*W. S. Varnum*, Plymouth Co., Iowa, states that a party offers to sell the recipe for making a paint with the above name. It is composed of Coal Tar, Rosin, Litharge, and his secret ingredient which renders the paint fire proof. Trials apparently show the paint incombustible.....We are asked, if it will be safe to make and use this paint. Paints made of Coal Tar, with ground slate and other mineral substances, have been patented, and in buying this recipe there is danger of infringing upon somebody's patent. If the recipe is purchased, it should be with a guarantee against this.

Seeds of Ash and Box Elder.—*A. Poitesu*, Brown Co., Neb. The seeds of these trees may be sown either in fall or in spring. If sown in autumn, the soil should be covered with straw, to keep the heavy rains from washing them out. If not sown until spring, the seeds should be mixed with dry sand, and kept in a cool place. From half an inch to an inch is deep enough to cover the seeds.....*B. S. Moore*, Vernon Co., Wis., asks when seeds of Box Elder are ripe, and how long they will keep after gathering. The seeds are ripe in autumn, and should not be kept later than next spring. The seeds on some trees are often all abortive; only those should be gathered that have a plump embryo or "chit" at the large end of the "key."

The Sheep Cough and Sneeze.—*J. H. Mack*, St. Joseph Co., Ind. The symptoms as described, indicate "grub in the head." The Gad-fly (*Œstrus ovis*), lays eggs upon the noses of the sheep. The maggots, when hatched, make their way up the nostrils, to some of the cavities in the head, causing the animals great distress. The grubs live upon the mucus they find, and the next spring leave the head, and become transformed into flies, which will lay more eggs and continue the trouble. Tarring the noses of the sheep, with a mixture of tar and grease, is an effective remedy. The animals are let out by a narrow opening, and each one is touched on the nose with a brush containing the tarry mixture.

Pickling Cucumbers.—*N. H. Smith*, Howard Co., Neb., and several others, ask us how to "pickle cucumbers by the barrel for market."....The best barrels are whiskey or alcohol barrels holding about forty gallons. Such a barrel requires half a bushel of salt, of the best kind, such as is used for dairy purposes. Remove one head of the barrel, lay in the cucumbers, sprinkling them with salt. They do not need much salt until the barrel is half full, after which it may be added more freely. When the barrel is full, replace the head, having it so filled with pickles that some pressure is required. Having headed it up tightly, turn the barrel on the side, fill it up with water through the bung-hole, and bung up securely. Where pickles are sold by count, keep an account of the number as the barrels are filled.

The "Cotton" of the Cottonwood.—*C. H. Carlton*, Chicot Co., Ark., sends us specimens of the fruit of the Cottonwood, to show the abundant "cotton" or down attached to the seeds. He asks if this product can be utilized. The Black Poplar of Europe produces a similar down, though not so copiously, which has been used as wadding, and attempts have been made to manufacture it into hats and paper. The expense of collecting it, and the want of strength and elasticity in the fibre, caused the manufactures to be given up. Mr. C. states, that while the supply would be inexhaustible, the gathering of it is a problem. A still more promising material in appearance, the hairs attached to the seeds of the Milkweed (*Asclepias*), has resisted the attempts to utilize it. The fibre being perfectly smooth, it will not spin or felt. Could the Cottonwood down be readily gathered, it might, like the down of the Cat-tails (*Typha*), be used as a non-conductor of heat, to form a material to surround boilers, steam pipes, etc.

Trouble with Squashes.—*Mrs. Bibb*, Louisa Co., Va., wishes us to tell her how to prevent the vines of the Hubbard Squash from dying, after they get so large as to run. Mrs. B's vines are evidently attacked by the Squash-vine Borer, *Ægeria cucurbitæ*, a near relative of the Peach Borer. The perfect insect is a moth with transparent hind-wings, while its fore-wings are black. The moth deposits her eggs on the stem of the vine, near the root; the young larvæ, as soon as hatched, make their way into the interior of the vine, where they feed and grow, and at length kill the plant. As to the remedies, it has been suggested that the female insect be trapped by means of sticky fly-paper, placed near the vines, and that they be caught when observed by means of nets. Vines have sometimes been saved by finding the hole by which entrance was effected, and cutting out the intruder before it has had a chance to do much injury. The insect always lays her eggs near the root, and it has been suggested that covering the few lower joints of the vine with soil, will ward off the insect.

Coloring the Hair.—*C. J. Rolf*, Adams Co., Ill., asks us: "Is there any way to color hair which was originally black-brown, but is now getting sprinkled with white?" He has heard of dyes, and asks us if they are safe in use. He has also heard that a certain comb, which if used frequently will restore the color of the hair, and asks about that.....All the hair-dyes of which we have any knowledge, whether offered as a liquid or as a powder, consist chiefly of lead either as an oxide, or in some other form. The powders are to be mixed with water and applied to the hair. The hair contains sulphur, and the union of this with the lead in the dyes, produces a sulphide of lead, which is black. But the application of lead in any form to the skin is dangerous. The comb above referred to is of lead; its constant use will turn the hair black, though with a risk of lead poisoning. But why bother with the hair at all? If spots of gray appear, welcome them. Gray hair upon a woman, who makes no attempt to conceal it, is often a feature of beauty. Why should it not be with men? In using hair dye of any kind, one runs the risk of being poisoned. It is far better to let the hair assume a uniform gray color, than to try to arrest it. Dyed hair deceives no one.

Raising Early Lambs for the Butcher.

JOSEPH HARRIS.

So far as my experience goes, there is no more trouble in raising an early lamb than a late one. In fact, our earliest lambs are almost invariably our best lambs. I would rather have lambs come in January and February than in April and May, and if I could have them earlier, I should prefer it.

Merino ewes will take the ram earlier in the autumn than the English breeds of mutton sheep. For this reason, if for no other, in raising early lambs for the butcher, I should select common Merino ewes, or at any rate ewes having more or less Merino blood in them. There are other reasons why I should select such ewes. There are more of them in the country, and they can be obtained cheap. They are healthy, hardy, thoroughly acclimated, and will stand rougher treatment than the English mutton sheep. They are smaller, eat less, and occupy less room in winter quarters. They will bear crowding better than the large English sheep—or rather, they suffer less, for it is a mistake to keep any sheep in too close quarters. Common Merino ewes, like Jersey cows, when well-fed, give rich milk, and if you want early, fat lambs for the butcher, the mothers, no matter what breed you may select, must have plenty of nutritious food.

I do not say that common Merino ewes are, in themselves, the best for raising early lambs. They are not. I have had grade ewes, the offspring of a mixed Merino ewe, and a Cotswold ram, that would produce larger lambs, give more milk, and the lambs would fatten more rapidly, and mature earlier. But it is not always easy to find such ewes for sale. Those that you find in market are apt to be culls. The butcher, if he has a chance, gets the best lambs. A good plan is to go to some large market and buy a car load of sheep, or three or four times as many as you want. Bring them home, and pick out the best ewes, and then sell the other ewes and wethers to the butchers. Select out more ewes than you expect to want. Some of them may have been already served by a mongrel ram, and some of them will not take the ram as early as you wish. By painting or "rnddling" the ram on the brisket, you can tell each day what ewes are served, and all that are not served up to a certain date, can be disposed of. This will get rid of all that were served before you bought the flock. You can generally sell those which you reject for more than you have paid for them.

I need hardly say that as soon as you bring home the sheep, you should give them the best of pasture, and if they have some extra food, such as cotton-seed cake, linseed cake, oats, corn or mill-feed, you will get stronger, earlier and better lambs.

Every sheep in the flock, those already on the farm, and those which you buy, should have their feet pared and thoroughly washed with strong carbolic acid. The crude, black acid is the cheapest. I put it on with a common paint brush, being careful not to let much of the acid drop on the body of the sheep. But see that every part of the foot, outside and between the hoofs, is completely wet with the liquid. In a few days go over the flock again. It is little work, and is a safeguard against foot-rot.

Dipping the sheep to kill ticks is also very important, but the scent of the dip is supposed to interfere with the ram, and it is better on this account, when early lambs are desired, to postpone the dipping until all the ewes are served. Merinos are not as liable to ticks as the long-wooled sheep and their grades, but all sheep should be dipped twice in the autumn, say at intervals of three or four weeks apart.

As to the selection of a ram for early lambs for the butcher, opinions differ. There is a notion that the black-faced sheep afford better mutton than the white-faced. There is a certain degree of truth in this, though the color of the head has nothing to do with the quality of the meat. Southdown mutton is not so fat as Cotswold, Lincoln and Leicester mutton—and the Southdowns have dark faces, and the Cotswold, Lincoln and Leicester have white faces. Hence the popular notion.

Cotswold mutton is too fat. Merino mutton is too lean, and there is not enough of it. There is too much tough skin, and bone, and tallow, in proportion to the nice, juicy, tender, lean meat. As a blacksmith once said, a carcass of Cotswold, and a carcass of Merino "should be welded together."

A careass of a nice, moderately well-fed Southdown, affords better mutton than a large carcass of a fat Cotswold. And it has been supposed, therefore, that to get the choicest of lambs for the butcher, we should use a Southdown ram. This may be true, but it does not necessarily follow. We never get young lambs too fat. The truth of this matter is, that it will probably make very little difference what particular breed of mutton sheep we select the ram from. The real point is to get a good, well-bred ram of any of the mutton breeds.

The use of ram lambs is not desirable, except to a very limited extent, say a dozen or twenty ewes in a season. A vigorous yearling ram, or one two, three, or four years old, can be allowed to run with sixty ewes. If the ram and ewes have some extra food, say a quart of oats each per day, you will be likely to get earlier, stronger and better lambs.

Buckwheat as a Farm Crop.

Buckwheat, though a grain, is not a cereal, and belongs to an order of plants that contains the various smartweeds, bindweeds, knotweeds, docks, sorrel, and the garden rhubarb. The name comes from the German *buch-weizen*—beech-wheat, the shape of the grain being three-cornered, like the beech-nut. The following table shows the chemical composition in one hundred parts of buckwheat flour as compared with that of wheat:

	Ash.	*Albuminoids.*	*Fibre.*	*Carbohydrates, Starch, etc.*	*Fat.*
Buckwheat	1.22	7.47	0.32	89.46	1.53
Wheat... ..	0.66	12.53	0.19	85.34	1.28

The albuminoids are less in buckwheat than in wheat; in fact, not much more than half as abundant, while there is a greater amount of starch and fat. Buckwheat is, therefore, shown by analysis to be more fattening and less strengthening than wheat. It make an excellent feed for pigs and poultry. Many persons believe that buckwheat is not healthful, and causes skin eruptions. Several other members of the buckwheat family produce powerful vegetable principles, and this plant may possess one such, though it is probably not harmful.

New York and Pennsylvania produce sixty-eight per cent of the twelve million bushels of buckwheat now grown in the United States. Only twenty per cent is grown outside of New England and the Middle States. The great fertile prairies and the vast South with its warm climate, are not favorable for the growth of this crop. Buckwheat does well in the hilly regions, where the soil is light and thin. It, in short, flourishes at higher altitudes, with a lower temperature, and under a greater rainfall than other grains.

One great merit of buckwheat is its availability as a second crop, thus replacing another that has been destroyed by frost, drouth, insects, or otherwise. It is also valuable as a weed exterminator. The infested land may be tilled until mid-summer and sowed with buckwheat, which by growing rapidly smothers the weeds. Another use is that of a green manure. It grows well on moderately poor land, and makes a large growth of straw, which rots quickly when plowed under, thus adding much vegetable matter to the soil. The uses of buckwheat are various, and the crop, though not a sure one, fills an important place in the economy of many of the best regulated farms.

BUMBLE FOOT IN FOWLS.—A wart-like substance sometimes appears on the ball of the foot, and if allowed to increase in size, it will produce lameness in the bird. This is caused by the fowls being confined upon cement or other equally hard floors. The wart should be removed with a sharp knife, and the cut surface touched with Lunar Caustic (nitrate of silver). Remove fowls thus afflicted to a yard or a coop, with a soft earth floor. The Houdans and Dorkings are most subject to bumble foot.

A New York Farm-house.

Very many of the readers of the *American Agriculturist* are accustomed to think of our Metropolis as a vast block of houses. They will therefore be surprised perhaps to learn that New York City, or what is known as the limits, embrace many farms and gardens, and some of them of extensive proportions. Any one of our readers might start on this August afternoon from Central Park, and drive from morning until night among these farm homes, and still be in New York City. Two or three times a week, one of our editors makes a circuit through this country portion of New York City, in search of facts and incidents for the readers of this paper. On the opposite page is presented an illustration of a fine old homestead, some twelve miles north of the City Park, through whose extensive grounds we drove the other day. They are situated near the Bronx River, and comprise a famous old mansion and many broad acres. The grounds and extensive gardens are maintained by the farmer and gardener, just as they were left by the old gentleman, now deceased, who laid them out very many years ago. On coming to New York to see the sights, it would repay our readers to visit this famous place. You must, however, use considerable tact in gaining admittance to the grounds, as the overseer is very touchy, and wishes you to know that the old gentleman appointed him head man "sixteen year or more ago," and that he is head man still. The engraving at the top of the page, which, like the other, we have reproduced for our readers from drawings made for the Park Commissioners, presents another view not far away, and also within the limits of New York City. All these, and adjoining grounds, are soon to be embraced in new parks. The authorities are appreciating more and more the importance of having purer and better air, if the Metropolis of the New World is to be kept in a healthy condition. These additional parks, which are to be constructed, will not only furnish more pure air, but enable thousands of people to take physical exercise in driving and horseback-riding.

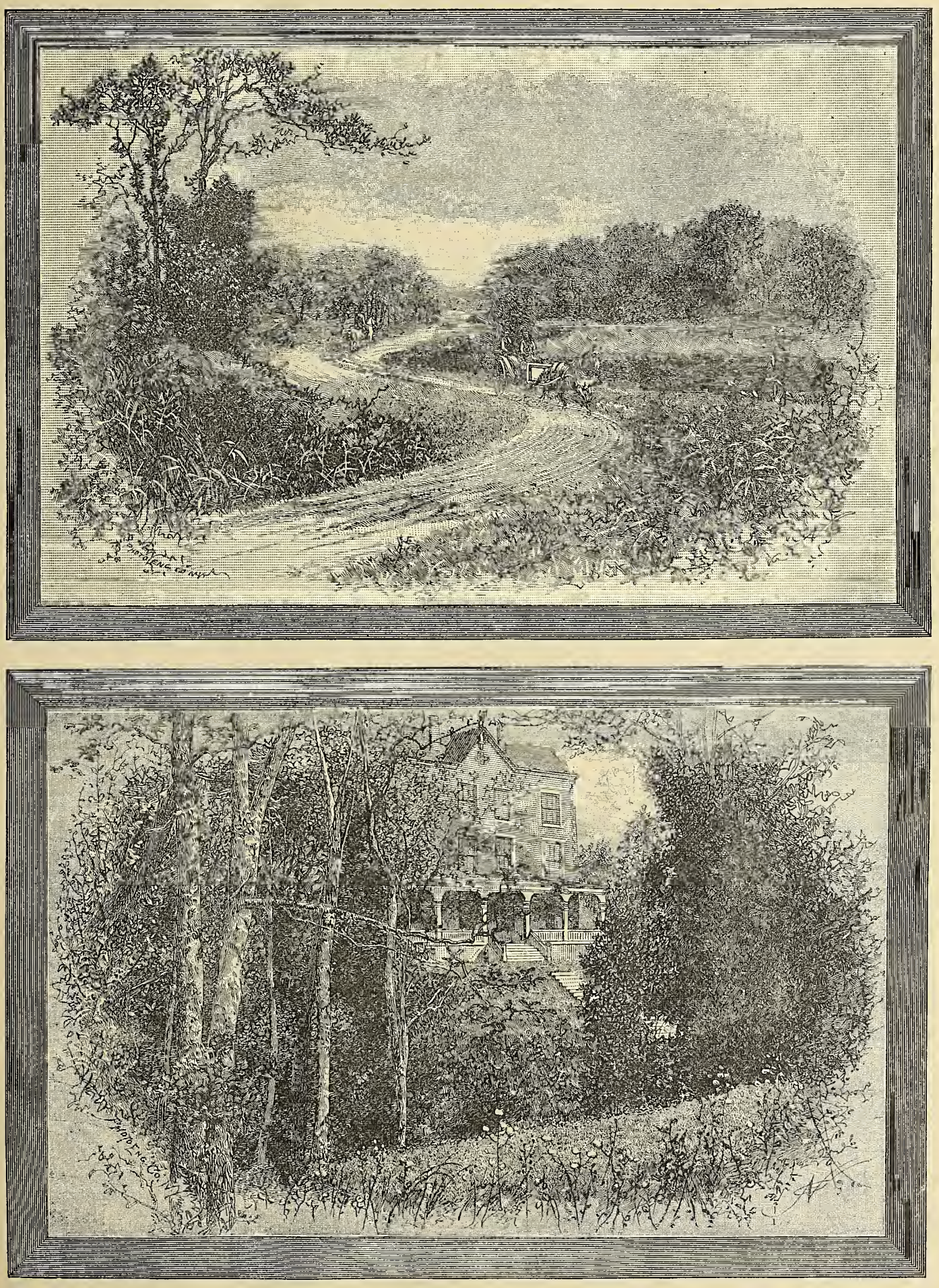
Digging Early Potatoes.

When potatoes are dug during hot weather, some care is needed in storing or pitting them. Farmers who wish to sow winter wheat after potatoes, are obliged to dig them early in September. The work is frequently done in a hurry, and the potatoes are drawn to the cellar, or placed in a pit in the garden or elsewhere. The potatoes are full of juice, are warmed by the sun, and the skin is broken and bruised—conditions, all of them, highly favorable for fermentation and decay. We have rarely met a farmer, who has not at one time or other lost potatoes in this way. "And it served me right," he would say, "because I knew better, but I was in a hurry to get in the wheat, and forgot to take the necessary precautions to prevent their heating." Spread the potatoes out on a barn floor, or if you pit them, put plenty of dry sand with them, and only a few bushels together in a heap. J. H.

Do not Stack Corn Fodder.

In nine cases out of ten, stacked corn fodder will heat and spoil. Sometimes corn fodder sown broadcast is so poor, yellow, and dried-up, that there is not enough sap in it to ferment, and such fodder may be stored on a scaffold or even in a small stack, or mowed away in the barn. But good corn fodder that has been sown in rows, and the land cultivated between the rows, can not be saved in this way. It must be either put into a silo, or tied into bundles and placed in shocks in the field.

A good self-raking reaper will cut the heaviest crop of corn fodder, and throw it into bundles. After they are well wilted, bind up with straw bands or corn stalks, or binding twine, and place the bundles in shocks at convenient distances, and and let them remain until October or November. Then make nine of these shocks into one large shock, and tie it with two bands on top. J. H.



A NEW YORK HOME.

Engraved for the American Agriculturist.—*(See preceding page.)*

Among the Farmers.

New Series.—No. 5.

BY ONE OF THEM.

Perhaps some of my readers think I have too much to say about Jerseys. This breed is, however, in many respects only typical of what may be made of any one of the favorite breeds of cattle. I recently went to Canada, to be present at an "official" test for butter of a little Jersey cow. These tests are very much like horse races. The cow is at her best, the time selected being only a few months after calving. She has either an abundance of grass, or the very best winter feed—roots, meal, bran, etc. She is, so to speak, trained beforehand, so that her appetite, always good, becomes almost insatiable, and then she is supplied with food well adapted to make milk and butter. Every means to induce her to make an abundance of rich milk is fair, except giving her milk or cream to drink, or feeding her abnormal or unusual kinds of food, like oily, or fatty substances. When every thing is ready, or supposed to be, the proprietor requests the President of the Cattle Club to send a committee to inspect the test. The committee men are expected to report for duty at a fixed day. They are entertained at the house of the proprietor, if convenient, and their expenses, etc., are paid by the Club, so that there is no pecuniary transaction whatever between the committee and the proprietor. Milking is usually done at six in the morning, and the same hour at night, but occasionally three times a day—eight hours apart.

The test begins by milking the cow dry, to the satisfaction of the committee. This milk goes as usual to the dairy. The next milking is at the appointed hour, and the weight of the milk is taken, then under the careful watch of the committee, it is set for cream to rise, or to ripen for churning, and the "creamer," or room in which it is set, is locked and sealed by the committee, if possible with their own lock and with their own seal. If the milk is set in a room, the windows as well as the doors are sealed, so that the committee is absolutely certain that the milk cannot possibly be tampered with, either by accident or design, by officious servants, or by some one inimical to the proprietor. The creamer or room must thus be opened, re-locked, and re-sealed for every milking, and when the milk is skimmed. The cream is kept in the same way, locked and sealed, and neither milk, cream, nor butter, until after the final weighing, is ever out of the sight of the committee when it is not thus under the safeguard of lock and seal.

The management of the milk, cream, churning, etc., is left entirely to the dairy people, excepting only the working of the butter, which must be done to the satisfaction of the committee. After the first working and weighing, it is salted with one ounce of salt to the pound, and after proper working, weighed again, which is final. To make the test satisfactory in all respects, the weight of the cow, the date of last calving, and the character of the weather should be noted, together with the temperature at noon, as giving the most correct notion of the day. It is well also to take the internal temperature of the cow, partly as a guide to her feeding and other treatment. A cow thus forced, is usually a little above the normal degree of heat, viz., one hundred degrees, but one hundred and two to one hundred and four degrees clearly indicates a tendency to fever. This under the circumstances is not alarming, though it would be at ordinary times, for when we consider the chemical action involved in the processes of digestion, assimilation, nutrition, and milk secretion, which are disposing of such a mass of strong, and so to speak, "heating" food in a day, one may well wonder that the temperature of the cow does not rise higher. In the matter of feeding, there is room for discussion. If all the cows could be turned into flush pasture with no other food, or if they could have pasture and a certain moderate, but abundant ration of special ingredients, they would stand on a more nearly equal footing. The former would be easy to accomplish theoretically, and yet there are comparatively few people who could be trusted, without watching, not to give extra grain feed. Human nature is hard to deal with, and while one breeder and his men could be implicitly depended upon, another could not be, and this man of doubtful probity would be the very one to make a hue and cry about the unreliability of the test. It is for this reason that breeders content themselves with the "go-as-you-please race," and look only to the results. The little cow referred to above, besides exercising due diligence in the grass and clover pastures, consumed during the last three days (when the feed was weighed), an average of nearly forty-eight pounds of grain feed a day. This ration consisted of about nine pounds of linseed oil-cake meal, twenty-two of crushed oats, twelve of coarse pea-meal, and five pounds of wheat bran.

Another and entirely different system of testing might be productive of still more valuable results. It is this. Suppose a tight building, or part of a building, to be fitted up to store feed of various kinds and to stable one cow. The cow being accustomed to the place, and at home in it, is there confined for her week's test. Her food—more than enough of each kind, is weighed out and stored in the building with her, except green feed or roots which must be weighed daily. The inspecting committee, having their own lock and seal upon the building, must be present whenever it is opened. The milk and butter test would go on as is now the mode. At the end of the test, the amount of food consumed could be accurately ascertained, and if necessary analyzed, so as to come at its exact nutritive value, and the cow's merit be judged not simply by the amount of butter she has been able to make, but also by the value of her average daily ration. Thus we might find, that one cow would make twenty pounds of butter a week at an average cost of fifty cents a day, while another would yield twenty-five pounds on one hundred cents a day. The comparative economy would be apparent, the twenty pounds of butter would cost but seventeen and one-half cents a pound, while the twenty-five pounds would cost twenty-eight cents each. No doubt greater differences than this would be discovered. It seems that now people really want to find out something "for sure," and they are going about it the right way.

Gates in Wire Fences.

A cheap and simple form of wire gate is shown in the engravings. It consists of the same number of strands as in the adjoining fence, attached to a post in the ordinary way at one end, while the other wire ends are secured to an iron rod. This rod is pointed at the lower end, and when the gate is closed (figure 1), this end passes down through a

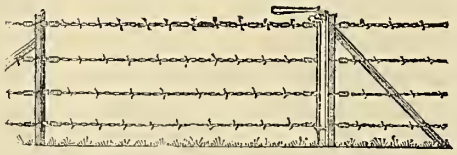


Fig. 1.—THE GATE CLOSED.

loop, and the upper end is secured to a hook. In opening the gate (figure 2), the rod is loosened and swings out, when the sharp end is thrust into the

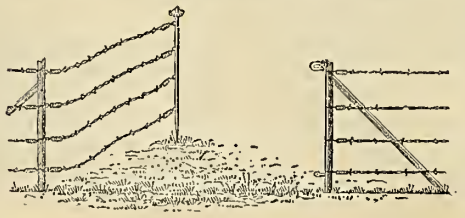


Fig. 2.—THE GATE OPEN.

earth, or a hole in a wooden block set in the ground at the proper place to receive it.

A Barrel Barrow.

Mr. H. W. Clark, Jefferson City, Mo., sends us a description of a barrel barrow he uses in wheeling slops for swine. The barrel with one head removed is fastened in the wheel-barrow frame, as shown in the engraving. It is kept in place by cleats



CONVENIENT SWILL BARROW.

fastened above and below the surrounding parts of the wheelbarrow. This barrow is inexpensive, easily constructed, and while resembling the tub barrow in common use, it holds more, and is more substantial. It can also be advantageously employed in feeding animals and carrying water for plants.

Keeping Cattle in the West.

PROFESSOR S. R. THOMPSON.

The conditions upon which cattle can be kept with the greatest profit in Nebraska are changing. In at least thirty counties in the eastern part of the State, the open range is nearly gone, and in most of this region each farmer must depend upon his own land for pasture. This condition is greatly changing the modes of handling stock.

Those farmers who are forehanded enough to fence in their pasture, and seed at least a part of it to tame grass, will soon find profit in so doing. A boy on a pony is no longer a satisfactory fence. On large tracts, where a little grass more or less is not of consequence, the boy and pony do very well, but when cattle must be confined to a limited area, and to go out of that is to get into your own or your neighbor's corn-field, some other kind of fence is needed. If the large farmers will seed most of their land to grass, keep herds of cattle and buy their grain for feed, they will do better for themselves and indirectly help their poorer neighbors, who have not the capital with which to buy cattle or to fence pastures, by furnishing them a market for their corn and oats near home.

In most country neighborhoods, corn and oats can be bought nearly as cheaply as they can be raised, especially where the labor has all to be hired. There are incidental advantages in this plan. By it a man can keep a larger number of cattle than if he raised all the grain he needs. Having a larger number to sell every year, he can command better prices. He avoids keeping a large number of men and teams to carry on his farm, and the increased burden on his household, caused by the boarding of so many hired men.

It is well known that cattle kept in pasture will thrive much better than when herded. The animals in a herd have less freedom, are driven about more, are not able to get water when they want it, and have to submit to other inconveniences, which do not occur to cattle in a fenced pasture. Experience shows that it is not difficult to convert a prairie grass pasture into tame grass. Keep sowing tame grass seed wherever the prairie grass becomes thin and tramped out, and gradually the one will displace the other. A tame grass sward made in this way is much thicker, and will yield more pasturage than one made on land that has been cultivated. The difference is quite as great as it was in the East between pastures made on the original surface of the soil before it was plowed, and that made on land which had been growing crops.

HOPS.—Of the forty-six thousand eight hundred acres devoted to hop culture, nearly forty thousand are in New York. Wisconsin stands next with about four and one-half thousand; California has about one thousand acres, and the balance is scattered through fifteen States. The leading hop-growing New York counties are: Otsego, Madison, Oneida and Schoharie. Nearly five-eighths of all our hops are grown in these.

Above-ground Cellar of Brick.

Above-ground cellars are drier, cleaner, and more healthful and convenient than those situated under buildings. We gave in the April *American Agriculturist* a description with engravings of one constructed of wood, and in answer to many inquiries, we now present one made of brick. Stone is equally good, and may be used when cheaper than brick. Figure 1 shows the cellar, exterior; figure 2 is a cross-section, and in figure 3 is seen the ground plan. The two walls are twelve inches apart, the space between being filled with dry saw

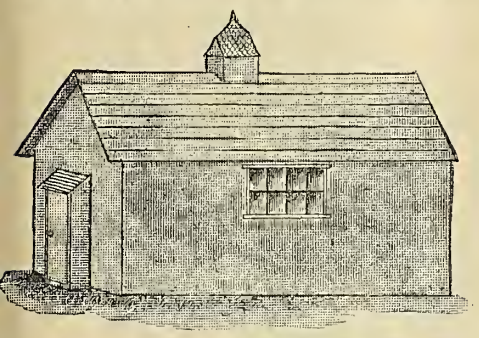


Fig. 1.—A BRICK ABOVE-GROUND CELLAR.

dust. Cross-courses tie the walls together, as shown in figure 3. The ceiling is inch-boards joined by tongue and groove, and nailed to the under edge of the tie beams. Two feet of dry sawdust is placed on the ceiling. The roof is sheathed close and shingled, the ventilator being arranged to open and close. The window is double, with a sliding shutter inside. In cold sections, the entry may be

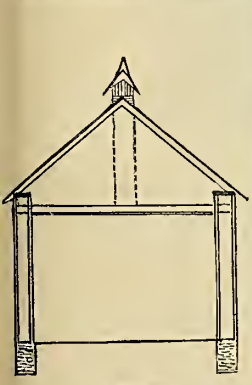


Fig. 2.



Fig. 3.

lined with two-inch lumber. Both doors should be closely fitted. The floor may be grouted, or made of brick laid in mortar. This cellar can be of any desired dimensions; the one shown in the engravings is fourteen by twenty-two feet, and seven feet high inside. It may be covered with climbers.

Preparing the Granaries.

The weevil infested our wheat granaries several years ago, and since then we have been careful to scrub them out once each year with boiling-hot salt-water. If the bins are not all empty when threshing time approaches, prepare those that are empty for the reception of grain, and transfer the old grain to these, and seal the bins just emptied. First, scrub the floor and sides with the boiling brine, being careful that it fills all the crevices. When this has well dried, prepare a thick white-wash, and with it coat the entire interior of the bins, filling the cracks with it. The day before threshing, take an old broom and sweep off the thickest of the white-wash. Since adopting this plan, we have had no pests in the granaries.

If the mice have gnawed holes through the sides, tack pieces of sheet-iron or tin over these, and place well-trained cats in the granary. It is much better to have the boards jointed than to place lath over the cracks, as the inclosed cracks will be inhabited by pests, very difficult to reach and destroy.

The loss occasioned by pests is not measured by what they consume. Mice may not eat much, but they leave crumbs plentifully behind them, which detract from the appearance of the wheat and lower its price, when it is sent to market. Weevils may not destroy much grain, but many millers will not buy grain infested with them at any price.

Hookertown Views of the Dog Question.

TIMOTHY BUNKER, ESQ.

The Farmer's Club and the agricultural journals make Hookertown very lively. The last topic stirring this rural region is the dog question. And nothing comes nearer the heart of the average landholder than his dog. The proverb, "Love me, love my dog," must have originated in the rural districts. The dog owner here prizes his cur of low degree more highly than the aristocrat his St. Bernard or his fox hounds. Old Bose is the very jewel of his establishment, and any insinuation that he chases sheep, kills turkeys, steals bones from neighbor's back-doors, or snaps at school children, is resented as a personal insult. Bose is a well-bred dog, grew up in the family, and never did any body any harm. Malice must be at the bottom of all evil reports about him. If one inquires of its owner what is the brute good for? the responses are various and characteristic.

George Washington Tucker says: "that yaller dorg of mine is worth his weight in gold jest to watch the house at night. I'd jest like to see any tramp enter my yard when old Tige is 'round; he'd make mince meat on him quicker 'en you could say Jack Robinson." The necessity of a watch dog about will be understood when it is known that Mr. Tucker lives in a hired shanty, rent two dollars a month; live stock—one shote, five hens and a rooster; household goods worth about fifty dollars! Burglars are so prone to visit such establishments that old Tige must stand sentinel inside by night, and worry his neighbors by day, the year round. Jake Frink is among the most stalwart vindicator's of dog rights. "I kalkerlate that I've jest as good a right to keep a dorg as the next man, legislater or no legislater. What upon 'arth du they 'spect a feller is gwine to du with skunks and woodchucks and other varmints, ef they tax the dorgs out of existence. With woodchucks on y'er beans and clover, skunks after y'er eggs and chickens, and nosin' round y'er garden-sass, and coons in y'er corn, their'd be a mighty lean look for Thanksgiven, I tell ye. The Guverner might jest as well not issoo his proklermashun. I'm agin this dorg law."—A look at Jake's garden or cornfield in summer, will impress any one with the high value of dog power as an aid to cultivation.

Seth Twiggs thinks dogs worth having for company. "Ye see I'm lonesome sometimes, even with the old pipe and Tirzah for company. Mr. Spooner preaches that it's scripture doctrin, 'It's not good for man to be alone.' Jess so, I believe that, I don't know what the Almighty made dorgs for, if it wern't fur company. Children take naterally to dorgs, as ducks du to water. I guess they are made to go together. The fellers we sent up to Hartford had better take care how they unsodder what the Almighty has put together. This tinkerin' at the State House is bad business. I'd really like to see statesmanship once in a while." The smoke was very thick about Seth's head.—Benjamin Franklin Jones says, "I believe in protectin' sheep but can't see jest how this dorg law is gwine to du it. It don't seem to thin off the dorgs much. They multiply jest about as fast. What we want is an improved breed of dorgs. Shepherd dorgs won't harm a sheep, and are a necessity for sheep-keepers. We can breed the thirst for blood out of the common cur, civilize him, and make him indispensable on the farm. He is in the process of evolution, working up toward the shepherd type. It seems a great waste of these hundred or more generations of training, if our law-makers are to arrest him in mid career, as an unfinished, abortive sample of the Creator's works I take some stock in evolution." Jones is one of the philosophers of our town. He lives in a tenement house—never owned a sheep, and probably never expects to, but he has heard of Darwin, and, like others who have not read him, thinks he understands evolution.

These, and many other things equally learned and lucid, are said in behalf of the cur which is overwhelmingly the favorite type of dog in the rural districts. I admit for argument sake that even the cur has his legitimate uses on the farm, and it is not quite the fair thing to exterminate him because he is the greatest hinderance to sheep raising. The most devoted dog fancier and breeder of pups, must admit that he is a dangerous animal to have around, and that the owner of a dog, of whatever degree, ought to guard the public against the evils of his running at large, and be held to strict responsibility for the damages to his neighbor. In many ways the dog is a heavy tax on his owner, and a terrible nuisance in the community. Every farmer having room for sheep, and wishing to raise them, wants legislation against dogs before embarking in this business. Statistics show in part the thousands and tens of thousands of sheep killed by dogs in every wool-growing State, but cannot show the loss to this industry, because of the multitude of farmers who fear to raise sheep on account of this annual slaughter. It is one of the most profitable and helpful branches of agriculture in all the older States. Supplying lambs and sheep to butchers pays abundantly, and wool is a good crop to raise at long distances from market. There is nothing like sheep to keep down brush and briars, and to improve the quantity and quality of the grasses. Many farms now growing to brush in all the Eastern States, might be made profitable if only the dogs were out of the way.

Foot Rot in Sheep.—French Treatment.

Foot Rot in sheep, as is well known, is an inflammation of the whole hoof, accompanied by the formation of blisters which break and become ulcers,

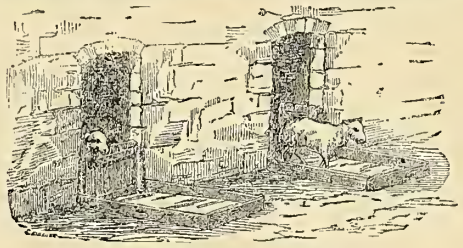


Fig. 1.—A LIME-WATER TANK.

discharging fetid matter. It usually appears in the fore-feet first, and when sheep are seen to favor these, often to the extent of grazing upon their knees, they should be looked to at once. In France the milk of lime has been found useful in preventing the spread of the disease, and for the cure of

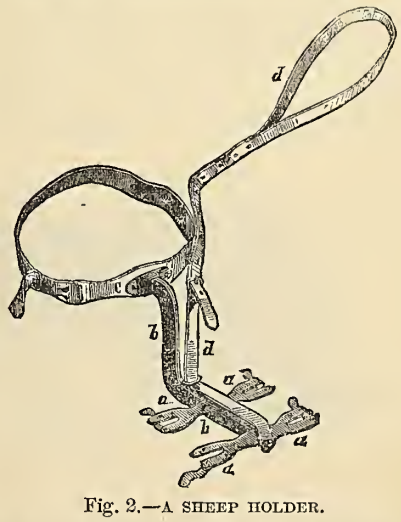


Fig. 2.—A SHEEP HOLDER.

mild cases. Shallow tanks or trays are placed at the doors of the sheep barn, and the animals, as they go out or in, bathe their feet in the liquid. These tanks are about ten feet long, and of a width suited to the doors of the sheep-barn, as

shown in figure 1. The sides are about four inches high, and there are strips nailed cross-wise on the bottom to prevent the animals from slipping as they pass through the liquid. Lumps of quick-lime are placed in these tanks, which, on the addition of water, slake, fall to pieces, and mixing with water form the milk of lime, which is another name for whitewash. If the sheep on coming out bring litter with them, this should be removed from the tanks by means of a rake. Where the disease has established itself, the sheep must be treated individually. The diseased horn of the hoof must be cut away with a sharp knife, and all ulcers cleansed. A concentrated solution of sul-



Fig. 3.—THE HOLDER IN OPERATION.

phate of copper (Blue Vitriol or Blue Stone), or a caustic ointment of some kind should be applied. A favorite ointment for this disease consists of:

Finely Powdered Blue Vitriol	One pound.
Finely Powdered Verdigris	Half-a-pound.
Linseed Oil	One pint.
Pine Tar	One quart.

The feet are thoroughly smeared with this, which is not washed off, as a solution would be, by the wet grass. For the ready treatment of the feet the French shepherds make use of the apparatus shown in figures 2 and 3. This consists of four hobbles, *a*, *a*, *a*, *a*, figure 2, fastened to an elbowed piece, *b*. The device is attached to the waist of the operator by means of a girdle, *c*. The strap, *d*, is used to secure the legs of the sheep, which, when operated upon, are held as is shown in figure 3.

A Prize Piggery.

CHAS. H. COBURN, N. H.

The size of the piggery, shown in figures 1 and 2, is twenty by forty-five feet. The yard-doors, *a*, *a*, *a*, figure 2, are two and a half by three feet, and raised by cords from the passage-way. The doors, *b*, *b*, are for the passage of the visiting hogs. There is a sliding-door placed at the end of the piggery against which a wagon may be backed for loading and unloading. The passage-way doors, *c*, *c*, are hung with strap hinges, fastened with hooks and staples. There are five windows on the south side, made with sliding sashes. On the north end of the building, over the pens, is a floor of matched boards, eight feet wide and thirty-two feet long, and six feet above the main floor. This furnishes abundant store-room for corn, etc. The floor in the kettle-room is laid with seven-eighth-inch hemlock boards. The floors of the pens are of two-inch matched planks, with the cracks well filled with coal-tar, and raised two inches above the passage. There is a cellar under the kettle-room for storing roots. It has a twelve-inch wall laid in cement, and a double bulkhead door, through which the roots are taken. The balance of the building rests on stout chestnut posts, and is planked upon the outside to the sills. The outside of the piggery is clap-boarded with spruce, and the roof is covered with pine shingles. Two ventilators made of tin, run through the ridge of the building. The chimney starts from the bottom of the cellar and reaches three feet above the roof. The partitions on both sides of the passage-way, and between the pens, are made of two-inch plank, three and a half to four feet high. There is a trap-door over the cellar doors, and above this, a pole with hooks, upon which to hang dressed hogs. The following is the estimate of materials and labor required:

2 sills, 6x6, 45 feet long.	26 pieces studding, 2x4, 6½ ft. long.
3 " " 20 " "	15 end studding, 2x4, 15 ft. l'ng.
2 " " 33½ " "	4 plates, 2x4, 45 feet long.
8 " " 8½ " "	46 rafters, " 6 " "
24 floor-pieces, 2x6, 5½ ft. long	46 " 2x5, 10 " "
2 " " " 16 " "	10 partition pieces, 2x4, 12 feet long.
1 passage-way sill, 6x6, 3½ ft. long.	11 pieces upper floor timber, 2x5, 8 feet long.
6 pieces floor timber, 2x6, 8 ft. long.	1 piece upper floor timber, 2x5, 35 feet long.
10 pieces floor timber, 2x6, 11 feet long.	

3,000 feet of timber, @ $14	$ 42 00
24 chestnut posts, @ 15c.	3 60
500 feet hemlock plank, @ $13	6 50
1,320 feet grooved pine plank, @ $16	21 12
440 " " " @ $14	6 16
910 feet plank, @ $13	11 83
120 feet, 2x2, hard-wood	1 20
275 feet sheathing, spruce, @ $15	4 12
220 feet hemlock boards, @ $12	2 64
1,700 " " " @ $12	20 40
6½ M. shingles, @ $3.50	22 75
600 feet clapboards, @ $20	12 00
3 windows and frames, 9x13 glass	6 00
5 " " " 8 lights	7 50
2 outside doors and frames	4 00
800 chimney bricks, @ $5	4 00
1 cask lime	1 00
2 ventilators	1 50
Nails, hinges, etc.	15 00
Cement for cellar, and labor	35 00
Laying brick	2 50
Carpenter work	40 00
10 troughs	3 00
Items not classified	5 00
Total	$278 82

Patented Inventions for the Grain Field.

The whole number of patents issued for plows up to the year 1880, was five thousand five hundred and eighty-five. Of these, there are fifty-six steam plows, and eight hundred and eighteen wheel plows. The patents for harrows and diggers number one thousand seven hundred and forty-six. The two thousand three hundred and fourteen patents for seeders and planters include five hundred and forty-three broadcast sowers, and one thousand and twenty-nine corn planters. The total number of patents issued for harvesters, is six thousand two hundred and thirty-five, among which are three hundred and ninety-eight self-binders, nine hundred and fifty-four self-rakers, and two hundred and fifty-two corn harvesters. Two thousand three hundred and seven patents for threshers have been granted, including two hundred and six corn husking machines, and three hundred and sixty-nine corn shellers.

Over ten thousand patents have been issued for implements and their improvements, connected directly with the grain crop. The farming classes are intelligent, and are quick to devise means for lessening hand-labor. The effect of the combined results of inventive genius, *i.e.* Yankee ingenuity upon us, as a people, is not easily comprehended.

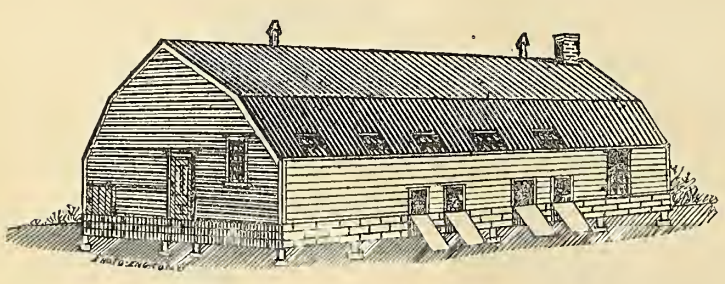


Fig. 1.—EXTERIOR OF PIGGERY.

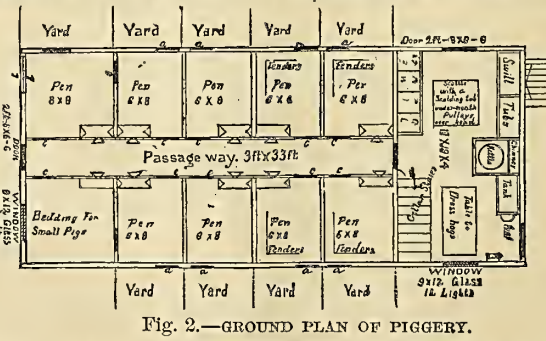


Fig. 2.—GROUND PLAN OF PIGGERY.

The Zebra Rush.

Among the Japanese plants which are attracting the special attention of American and English growers in the present furore for everything Japan-



THE ZEBRA RUSH.

ese, is the Zebra Rush. The leaves are transversely banded with white and green, as seen in the engraving, and bear a striking resemblance to porcupines' quills. The cylindrical leaves of a strong plant are two feet or more in hight. The plant has passed into the collections of florists, and proves to be a form of *Scirpus Tabernæmontanus*, a well known European and Asiatic species. In justice to one who has done so much to enrich our gardens with rare Japanese plants, we should say that this Zebra Rush was sent home by Thomas Hogg long before the Japanese presented it at the Centennial Exhibition, but his plants died. Variegated leaves with the white markings disposed lengthwise or in blotches, were quite common, but plants with the markings disposed transversely, were not known before the introduction of this rush. Several years after, a variety of *Eulalia* (*Miscanthus*) *Japonica*, with transverse markings upon its leaves was introduced from Japan, that country of interesting plants. Those who consider all white markings upon plants as due to disease, will be puzzled at this rush, which presents such an alternation of green and white. Very probably the Zebra Rush is hardy; having but one plant, we have not cared to test the matter by leaving it exposed in the open ground during the winter.

Plant the Bulbs Early.

The lover of flowers can receive no more ample return for the money expended, than for that which he lays out in Holland bulbs. In autumn he buys and plants a lot of "onions," as the French call them, and in early spring is rewarded by a magnificent display of flowers. The principal bulbs included under the name of "Holland" or "Dutch Bulbs," are Hyacinths, Tulips, Narcissuses of many kinds, and Crocuses. There are others, but these are the leading kinds. We are glad to observe that a new interest is awakened in these charming flowers, especially in the species, and the many varieties of the Narcissus. In the spring of the present year, flower fashion set strongly in favor of the Narcissus; a neighbor of the writer, having planted largely of Narcissus bulbs left over from last fall's sale, cut the flowers and sent them to market. His returns for the flowers were greater than he could have received had he sold the bulbs, while these, having a year's growth, will give a fuller crop of flowers next spring. To have the best success with Holland bulbs, they should be planted early. The time for planting in this country, must of course depend upon the date at which they are imported and offered for sale by the dealers. As soon as the bulbs can be procured, they should go into the ground. A safe rule is to plant the bulbs their own depth below the surface, and to set them twice their width apart. Planted early, the bulbs have ample time to form abundant roots, which will later be of service in promoting a vigorous growth of foliage and bloom. Bulbs are admirable window plants, and are easily managed. Keep the pots at a low temperature and in the dark, to cause roots to form before the leaves begin to develop, a condition necessary to success. All who propose to plant Holland bulbs, whether in the open ground or in pots, etc., for house-blooming, should procure them as early as they are offered for sale by the dealers, and plant at once.

Crocuses in Grass.

Adjoining the railroad station at which the writer takes cars for the city, is a triangular piece of ground, that a neighboring florist keeps bright with flowers the whole season. There is a long border for flowers, and on both sides of this is a broad strip of grass, which is kept mown as a small lawn. A year ago, the florist referred to planted crocus bulbs in clumps all over the grass. An opening was made in the turf, from three to a dozen crocus bulbs were planted in each opening, and the sod replaced. The past spring this grass plat was gay with the bright flowers of the crocuses, which kept in bloom for several weeks. So attractive was this station garden, that in several cases passengers stopped over until the next train, in order to more carefully view, and make inquiry about, the flowers. Planting in clumps in the lawn, is the best method with all save the large, named varieties of crocus, which may be planted in clumps in the border. Crocuses are among the earliest flowers to appear in spring. They bloom and their flowers fade away, before the grass needs mowing. Bulbs, thus set out, will increase in strength and numbers and last several years. This method of planting may be commended to all who have lawns large or small.

A New and Fine Narcissus.

The bulb season in England this year is marked by the sudden appearance of a flower that, on account of its large size and great beauty, makes a sensation. An engraving in the "Gardener's Chronicle" (London), allows us to give the life-size portrait of this new comer, which has a history. The flower was exhibited at a meeting of the Royal Horticultural Society, by Messrs. James Dickson and Sons, of England, as "James Dickson," and as such was awarded a certificate. Now comes Mr. William Pickstone, who claims that the variety originated in his garden in Wales, some sixteen years ago, and that he has grown and multiplied it there and elsewhere as "Sir Watkin." Leaving the Society to settle the question as to the priority of name, we may say that the variety is probably a chance cross between *Narcissus biflorus*, and some other, and exceeds in size the Emperor, Horsfieldi, and others heretofore regarded as the finest varieties. The segments of the flower, with a spread of over four inches, are of a pale canary yellow, and the cup, which is handsomely fringed, is of a rich gamboge-yellow. Unlike some other large varieties, this is exceedingly fragrant. That so striking a flower should have been cultivated for sixteen years before coming to public notice, is accounted for by the fact that its discoverer is a farmer who grew and increased the bulbs for his own gratification. Some of the bulbs having passed into the hands of the firm above mentioned, they at once brought such a remarkable novelty to the attention of horticulturists.



A NEW NARCISSUS, "SIR WATKIN."

Night-blooming Cereus as a House-plant.

THOMAS SHEEHAN.

There are a number of night-flowering Cereuses, but the one especially known as the Night-blooming Cereus is *Cereus grandiflorus*, which, when in full bloom, presents a rare sight. Some of the flowers of the night-blooming kinds are exceedingly fragrant, notably *Cereus triangularis*, a single flower of which, when well open, will fill the air of a room with its pleasant odor. These plants can be made to bloom freely, by keeping the soil quite dry, and allowing them very little pot-room, as they depend more upon the atmosphere than the soil for their growth. We have known large plants of *Cereus grandiflorus*, to produce as many as twenty fine blossoms each in the course of a season. We have found that liquid manure, if applied to these plants about once a month, and when the soil about them is very dry, will work wonders with them, and when a rapid growth can be obtained, there will be no trouble in having an abundance of flowers at regular intervals. Care must be taken not to have the liquid too strong. A small quantity of brick dust, mixed with the soil in which they are growing will be beneficial. These species of Cereus are easily propagated by cuttings, which will root readily in sand of any kind. Being of a slender habit of growth, and rather rampant, they should have some sort of support, and it is advisable to either train them to a trellis, or upon wires or a string stretched over and along the window sash. We have had a number of flowers of a pure feathery white, *C. grandiflorus*, that were over fifteen inches in diameter; this is the best of the night-flowering species. Formerly not only the different species of Cereus and of other genera of the Cacti were much more frequent as house plants than at present. They require very little care, and in their magnificent flowers give an abundant return for the little attention they need. There are some kinds that bloom in winter, but the great majority are summer flowering, and take a long rest in winter. They will endure a great amount of neglect, but must be kept where they will not be frozen.

Fall Planting—Stripping the Leaves.

No questions at this season are more frequent than these: Do we advise fall planting?—Is it proper to strip the leaves from nursery trees?—As to fall planting, the answer would differ with the locality. Where the soil is in good condition, and in localities where there is a usually long autumn, and the winter does not shut down suddenly, there is much to be said in favor of fall planting of orchard trees of all kinds. Should fall planting be undertaken, and the weather become unfavorable, the trees, being at hand, can be heeled-in and ready for planting next spring. As to stripping the leaves from nursery trees, especially from peach trees, we regard the practice as a legitimate one. If the leaves have done their work, and can be removed by merely running the hands along the branches, no harm can come from removing them. Leaves that can be readily removed, can be of no further use to the tree. Hence we say, if the leaves can be stripped with great ease, no harm can come of stripping them,

The Artillery Plant.

Among the most interesting green-house plants, is *Pilea serpyllifolia*, popularly known as the Artillery Plant. It is a sueculent plant with numerous branches and very small leaves. It has, as shown in the engraving, such a fern-like habit, that we have known it to be cultivated in the belief that it was a fern. The plant is a native of Central America, and needs a warm green-house. It will do fairly well kept in a warm, sunny window, but if it gets chilled, it loses its leaves and presents a most sorry appearance. Its flower buds, which are very numerous and pinkish, are smaller than the head of a pin. If when the sun is shining upon it, the plant be gently sprinkled with water, each little



THE ARTILLERY PLANT (*Pilea serpyllifolia*).

bud pops open, and the stamens emit their pollen. When many flowers thus open at once, there is produced a smoke-like cloud of pollen, which is quite striking, and makes the name "Artillery Plant" appropriate. The plant belongs to the Nettle Family, and may be readily increased by cuttings. On account of its fern-like appearance, the plant is sometimes used with other sueculent plants in working out ornamental designs in bedding.

"Do Potatoes Mix in the Hill?"

The above question, variously expressed, comes to us every now and then. This time it is from "A. W. M.," Alamosa, Col., who writes: "Please state whether potatoes of different sorts, planted together, will affect one another so as to produce tubers different from the seed planted, *i. e.*, the potatoes, when dug, will be different from those planted in the ground?"—We might answer this with an unqualified "No," as the potatoes do not "affect one another." Such an answer would not be satisfactory, in view of the fact that occasionally potatoes, when dug, are found to be "different from those planted in the ground." Some farmers are so well assured that potatoes will "mix in the hill," that to avoid it, they take great care to plant their different varieties as far apart as possible. It is often very inconvenient to plant the varieties at a great distance apart, and farmers should understand that all the care taken to do this is utterly useless. They should be assured that the tubers of one variety can have no influence upon the tubers of another kind, however near together they may be planted—even if in the same hill. It may be asked: "if they do not mix, how do you account for the fact that potatoes are sometimes dug which are unlike those planted as seed?" Similar changes occur in other plants in which there is no suspicion of "mixing." It is a well established fact, that a branch of a peach-tree has more than once borne nectarines, and a nectarine tree has borne peaches. A Black Hamburg grape vine, having been injured by fire, threw up a new shoot, the grapes upon which, to the surprise of the owner, were white instead of black. Florists are aware that many of their choice greenhouse plants, notably the bouvardias and geraniums, have given flowers on new branches, which were quite unlike those upon the rest of the plant. A few years ago a noted florist obtained two very distinct roses from a well known kind. Two branches produced flowers quite unlike each other, and so different from the original sort that they were propagated and are now in commerce as new varieties. Cultivators call these departures from the original plants "sports;" botanists call them "bud variations." This last is a more precise term, as each branch proceeds from a bud, and whatever causes these variations must have its effect upon the bud. The application of this to the variation in the potato, will be apparent when we consider the real nature of the potato, which is a tuber and not a root, and has no more connection with the root than if it grew upon the stem, above the surface of the soil instead of below it. If a potato plant, or vine be dug up just as the new potatoes begin to "set," the real nature of the tuber may be seen. Underground stems are produced, which begin to swell at the ends, and these ends increase until the full size of the variety is attained. These tubers, unlike the roots, have buds, or "eyes," as they are popularly called, corresponding to the buds of an above-ground branch. When a seed potato is planted, one or more of its eyes start, the growth from one eye, or bud, corresponds to, and really is a branch; this bud may vary, though we do not know what causes it to do so any more than we know the cause of the variation in the bud of the peach or the rose. All that proceeds from that bud or eye, whether above-ground or below, will be unlike the seed potatoes that were planted. We do not notice differences in the above-ground growth of the vines, as they are not the portion for which the plant is valued, but differences in the tuber at once attract attention. These differences are shown in size, shape, color, time of ripening, etc., that of color being the most striking. The "Late Rose" was a sport (bud variation) from the "Early Rose;" here the important difference was in the time of maturing. In this case, the variation was noticed in the plant, or vine, one hill of Early Rose remaining green and still growing, long after all the other plants were completely dead.

Easily-Made Fruit and Flower Baskets.

While our Yankee ingenuity is shown in many directions, we are quite behind other people in basket making. One who visits the markets in Canada, discovers that berries are offered in curiously

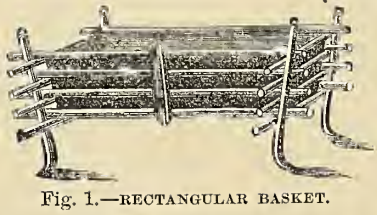


Fig. 1.—RECTANGULAR BASKET.

shaped receptacles, made of the bark of the Canoe Birch. If he finds in the New York City market, flower baskets, neatly wrought of green rushes, he may be sure that the maker is a woman living in Weehawken, or some other of the many settlements of Germans in New Jersey. Baskets to hold fruit and flowers may be readily wrought out of very simple materials. Straight sticks of any kind of brush, with the bark on, make pretty rustic baskets. Still neater ones are made from the Southern cane. These canes are sent North in great numbers for use as fishing poles. The long upper ends of these canes, not being strong enough for anglers' use,

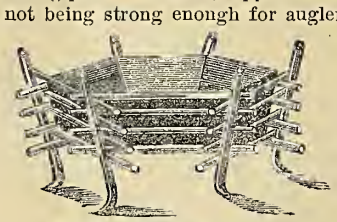


Fig. 2.—SIX-SIDED BASKET.

are cut off, and sent to market separately for the use of florists, who find them very convenient as supports for plants. The small canes, by the aid of fine copper wire, may be made into the forms shown in figures 1, 2 and 3. Straight sticks of any kind may be wired together in the same manner. If used for flowers, these baskets may have a lining

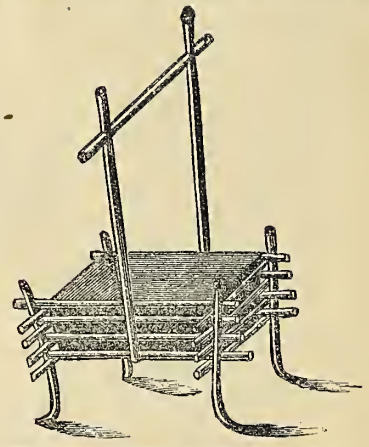


Fig. 3.—HANDLED FLOWER BASKET.

of stiff brown paper or paste-board, to hold the moss in which the flowers are set. Figure 4 shows a basket very popular in England. It is largely made of splits in one of the English rural districts. These baskets were shown at the first World's

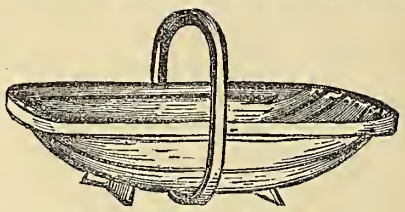


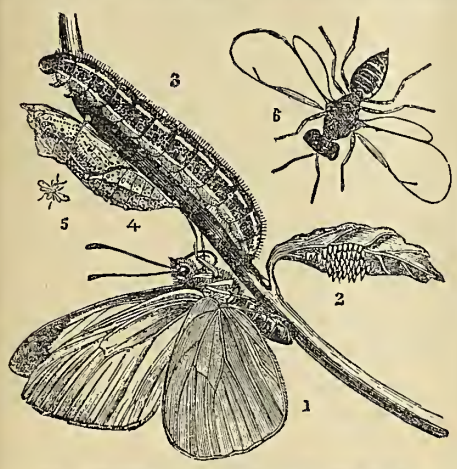
Fig. 4.—THE QUEEN'S BASKET.

Fair. Her Majesty saw them, and ordered one for each of the Royal children. This at once made the basket popular, and the makers at once adopted the name of "The Queen's Basket."

New Destroyers of the Cabbage Worm.

We say "the Cabbage Worm," being well aware that there are three, if not more caterpillars of as many species of butterflies that are popularly known as "Cabbage Worms." These are so nearly alike in both appearance and habits that, for all practical purposes—that is, their destruction, they may be treated as one. It is a most wise provision in Nature, that when an insect attacks our crops in destructive numbers, its insect enemies increase in proportion. Indeed, were it not for this help, our own labors in destroying injurious insects would avail but little. In England, to which we are indebted for some, at least, of our cabbage worms, great help is received from two Ichneumon flies, which by their parasitic habits, cause the death of the worms, by depositing their eggs upon the caterpillars, or upon the chrysalids. One of these, the *Microgaster glomeratus*, lays its eggs, sometimes more than sixty, in one caterpillar. These hatch, and the maggots from them feed upon the interior of the caterpillar, not destroying its vitals. At the time for the caterpillar to turn to a chrysalis, it dies, and the young maggots come out and spin their little cocoons on the cabbage. These co-

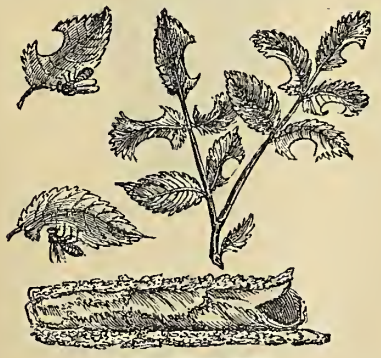
coons look like eggs, but should not be destroyed. Another fly attacks the chrysalis when just formed. This (*Pteromalus brassicæ*), lays some two hundred and fifty eggs upon the tender skin of the chrysalis, the young maggots eat their way into the interior, and live upon its contents, of course destroying the foster insect. The engraving shows the cabbage butterfly at 1, its eggs at 2, caterpillar at 3, chrysalis at 4, and the Ichneumon fly of the natural size at 5, and magnified at 6. One parasitic fly has been found attacking the cabbage worms in this country; whether it is of this species, we are unable to say. Wherever such flies, or their little cocoons are discovered, they should not be destroyed.



NEW DESTROYER OF THE CABBAGE WORM.

What Cuts Rose Leaves?

Mrs. S. Walker, Bergen County, N. J., writes us: "I find the leaves of our rose bushes are badly disfigured. Pieces forming a part of a circle are, as in the specimens sent, as neatly cut as if the work was done with a pair of very small scissors. What cuts the rose leaves?"—The leaves show that one of the Leaf-cutter Bees has been at work upon them. These bees belong to the genus *Megachile*, of which there are several species. They are all provided with stout jaws, which are able to cut the leaves like scissors. The engraving shows (reduced) the manner in which the rose leaves are cut. The pieces of leaf are used to build a nest, which may be in a crevice in a tree, or under a board. One of the nests is shown in the lower part of the engraving. Having built her cell, the bee places in it a supply of pollen for the food of the larva, and finally deposits an egg in the cell, which is then closed up, and another is begun.



LEAF-CUTTER BEES.

One writer states that he turned over a board, under which he had noticed a bee at work, and found that she had made thirty cells, all of pieces of rose-leaves. Upon making an estimate, he found that about a thousand pieces of leaves had been used. It is not likely that these bees, also called Upholsterer Bees, will ever be a serious pest to rose-growers. They may be kept in subjection by watching them as they leave the rose bushes, ascertaining where they build their nests, and destroying these before the new brood of bees appear.

Broadcasting and Drilling-in Wheat.

There are two methods of sowing wheat—broadcast and in drills. By the first the seed is scattered irregularly upon the surface of the prepared soil, and covered with a harrow or cultivator. Broadcast sowing may be by hand, when the expense of a machine is saved, or by a broadcast sower, with which the work is rapidly done. Cheapness and rapidity are the principal advantages of broadcast sowing, either by hand or with a machine. More or less of the seed remains upon the surface of the soil after the harrow or cultivator has passed, while the covered grains are at various depths—some too deep and others too shallow for their best development. There is therefore some loss of seed, which must be allowed for in the seeding. Sowing in drills cannot be done by hand, and the cost of the machine must therefore be counted when this method is considered. The advantages of drilling, however, far outnumber those of broadcasting, so that drills are now very generally used in the wheat-growing regions. With a drill properly adjusted, nearly every grain can be placed at the depth best for germination and growth, and well separated from all other neighboring grains. There is much less seed required in drilling than in broadcasting, making an important saving in favor of the former method. An average of two bushels per acre is used broadcast, while one-half to five-eighths of this is sufficient with the drill.

Wheat that is drilled-in "winter kills" less than where it has been scattered broadcast. This winter killing is caused by the frequent freezing and thawing of the earth near the surface, which raises the roots out of the soil, and exposes them to the drying air and sun. When sown with a drill, the grain is in a slight furrow, and the freezing and thawing does not so easily lift the plant; it also tends to fill up the furrows made by the teeth of the drill, and thus adds protection to the roots which may have become exposed. Under the best conditions wheat should be sown about one inch deep.

Valuable, but Little Known Grasses.

Timothy is so generally grown by our farmers, that one might suppose it to be the only grass suited to our climate. One reason for its culture, to the exclusion of other grasses, is the reputation that Timothy enjoys among buyers of hay. A city livery stable keeper, or other purchaser, will not usually accept any other hay than Timothy. As a hay crop, this grass has much to commend it, but there are others quite as valuable, while as a pasture grass, it is one of the poorest. It is very difficult to break up a long established practice, yet we are glad to know that our frequent advocacy of Orchard grass in past years, has induced many farmers to sow it instead of Timothy, and they have found the change profitable, especially if the field was ultimately to be pastured. Among other grasses to which farmers should turn their attention, is the Tall Meadow Fescue (*Festuca elatior*). This grass presents itself in three forms. The typical Tall Meadow Fescue (*F. elatior*), is three or four feet high, with an ample spreading panicle and broad leaves, as in the engraving. The Common Meadow Fescue (*F. pratensis*), is not so tall as the foregoing, and with a close, slightly branched panicle. The Spiked Meadow Fescue (*F. loliacea*), has the flowers in a spike, *i. e.*, the cluster is not branched. These three forms were regarded as distinct species, indicated by the names above given. They however run into one another, and while botanists regard them as forms of one species, the seeds of the varieties are kept distinct by seedsmen. Though rarely sown in this country, these forms have been introduced, and one or all of them may be found in established grass lands, especially in the older States. In nutritive quality, the three forms are regarded as about equal, the principal difference among them being in size.

The second form (*F. pratensis*), is known in Virginia as "Randall Grass," and in North Carolina as "Evergreen Grass," and in the mountainous portions of both States is highly esteemed as a pasture grass, especially for sheep. These Fescues are very valuable on account of their adaptability to moist and even wet or marshy lands, and as their roots penetrate the soil to a great depth, they endure the drouths remarkably well. The seed catalogues advise sowing forty pounds of seed to the acre; a good stand has been made with half that quantity of seed of the best quality. Another, and related species, deserving attention, is the Sheep's Fescue (*F. ovina*). This was described and illustrated in February of last year. Like the species already noticed, this has several well marked forms, and is as valuable for elevated and dry soils, as is the other for wet ones. It is affected by the character of the soil to a remarkable degree.



TALL MEADOW FESCUE.

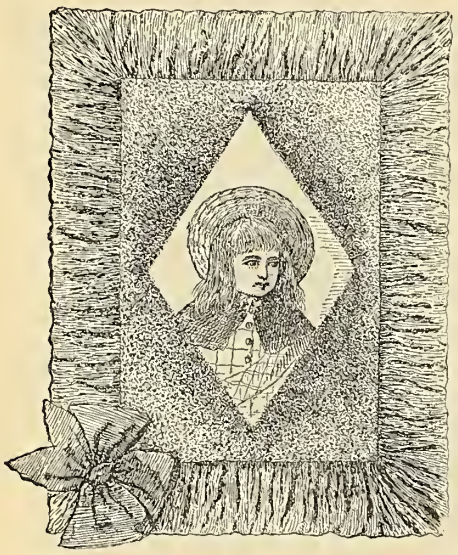
Sow Now for Spring Flowers.

While our gardens present a much greater variety than did those of a half century ago, there are some plants in which the old-time gardeners excelled. We do not see such beds of Pansies, or of Rocket Larkspurs, as were then the pride of the gardeners. Success with Pansies is mainly due to sowing the seed in autumn. If the seed is sown in spring, by the time the plants begin to bloom hot weather comes, and the flowers become fewer and smaller. In order to have the flowers in spring, sow the seeds early this month. Make a spot of rich soil fine, and level the surface by pressing it with a board. Sow the seeds, sift a little soil over them, and press down firmly with the board. When the plants are an inch high, transplant them to the place where they are to flower. The plants are quite hardy, and all the winter protection they need is a little brush to keep the snow from pressing too heavily upon them. The Rocket Larkspurs are, unlike the tall ones, annuals. A bed of them is as showy as one of Hyacinths. Sow in a well enriched bed this autumn, but leave them to flower where they were sown. The bed may be covered with brush during the winter, and if the plants are too much crowded in any part of the bed next spring, thin them by cutting out the surplus. They do not transplant satisfactorily.



Plush and Satin Picture Frame.

The pretty picture frame shown in the engraving, is easily made. Cut two pieces of paste-board the size desired for the frame, one for the back and the other for the front. In the latter make an oval opening large enough for the picture, and cover the paste-board with garnet plush, drawn smoothly over the surface. Cut the diamond in the plush somewhat smaller than that in the paste-board; and "slash" the edges around and glue

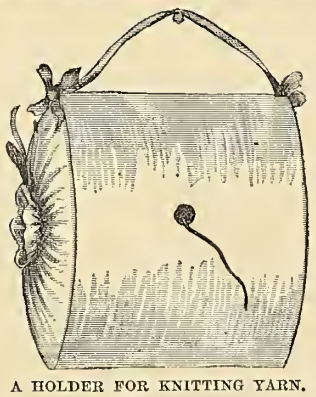


A PICTURE FRAME OF PLUSH AND SATIN.

them on the back. Fasten the mat, glass, picture, and back piece all together with a binding of stout muslin glued on. Place satin ribbon around the frame, as shown in the engraving, and finish with a neat bow in the left hand corner.

A Ball Holder.

The pretty little ball holder, shown in the engraving, will be appreciated by any one who does much knitting. It is intended to hang on the arm or back of the chair, and to hold the ball of yarn so that it can unwind easily. A piece of paste-board, six inches wide and eighteen inches long, with a small hole in the middle, is made into a tube by sewing the edges together. It is covered with



A HOLDER FOR KNITTING YARN.

a piece of bright silk or cashmere, by catching the edges across on the wrong side. The cover is cut over the hole, and the edges drawn in on the wrong side. Insert a lining of silk or muslin to cover the long stitches. A piece of material four inches deep is sewed around each edge, and drawn up by a narrow ribbon run in a casing. A ribbon is also tacked across from side to side, and each end finished with a small bow. The ball is placed in the holder through one end, and the end of the yarn or silk is taken out through the hole in one side.

Use for Old Wash-Stands.

The old pine wash-stand, now tucked away in the garret, but so common a few years ago, the one with a hole in the top for a wash-bowl, bars for towels, and a drawer and shelf below, is a treasure not to be despised. Do you want a pretty Queen Anne table, for books or music, remove the back piece and bars, and nail a smooth board over the top to cover the hole. An ounce of shellac dissolved in a pint of alcohol, with enough lamp-black added to make it the desired dark shade, will supply enough varnish to transform the pine table into a fashionable ebonized one, as the legs only require to be varnished. Then cover both shelves with dark blue or olive plush or velveteen, which can now be purchased very cheaply, and put a straight valance of the same round the lower shelf. Finish the top one with a worsted chenille fringe, in bright Persian colors, and edge the valance with the same. It will take only about a yard and a quarter of the plush, and three yards of fringe; and your table will be the admiration of all who see it. If it is to stand against the wall, three sides of the lower shelf only need be trimmed, and the drawer left for use at the back.—For a bedroom these tables are pleasing, if simply varnished and covered in the same way with a pretty, cheerful cretonne, edged with a full ruffle of the same. Such a stand is a useful gift for an invalid, when placed by the couch, to hold bottles and glasses.

Taste in House Furnishing.

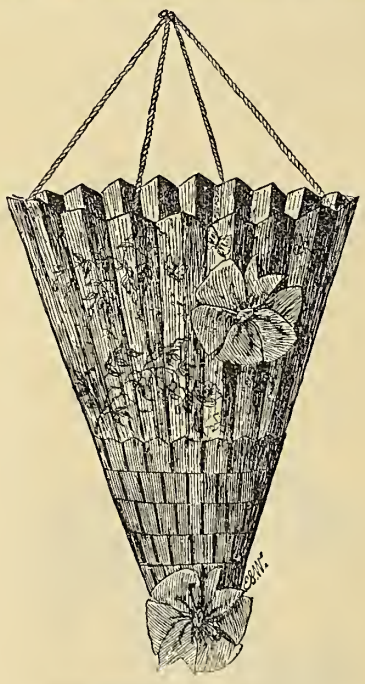
A simple room plainly and cheaply furnished, but arranged with a careful and artistic eye and hand, may be more attractive than the most sumptuous drawing-room where the divine gift is lacking. A very good test of a room, is to consider "Would it look pretty in a picture?" To find this out turn a mirror upon the different parts, and see the effect. This will often help one to correct and re-arrange anything that may be wrong. If new carpets cannot be procured, Brussels and ingrains may be wonderfully cleaned and brightened by washing them, on the floor, with white castile soap and water. This renews the carpet, never injuries, and always freshens it. Take two pails of tepid water, and finely scrape into one enough white soap to make a slight lather. Wash the surface of the carpet lightly (not sopping), with the lather only. The large scrubbing brushes with long handles are good for the purpose. Rinse well with the second pail of water, still not wetting too much, and dry with soft, clean cloths. If the carpet is worn as well as soiled, cover the centre with gray linen, leaving a bordering of the carpet. This linen, too, makes excellent coverings for lounges and chairs, and a curtain of the same, washed of its stiffness, trimmed with Ritcella or antique lace, and hung on a pole, falls into most graceful folds.

The arms and legs of odd chairs may be tastily adorned with bunches of ribbon. Lace curtains are looped back with wide satin ribbon, generally white, or old gold. For bedrooms the newest curtains are of plain India mull, the same color as the furnishings of the chamber. If blue, they are tied back with pale pink ribbon, and *vice versa*. The latest portières are of crazy patchwork, oriental in their gorgeousness and very handsome. Fine paintings are great furnishers, and she who is so happy as to possess these, should make the most of them, and have her drawing-room walls of a neutral gray to throw them out to greater advantage. But if good oil or water colors be wanting, have a paper of robbin's-egg blue, with a maroon bordering, or one of the charming Morris Rossetti papers designed in naturalistic figures.

In these days, however, no one should be without good pictures of some kind, when beautiful etchings and engravings are so plentiful and cheap, and fine copies called "Photo-Gravures," of Millet's "Angelus," Raphael's, "Sistine Madonna," and other masterpieces of Delaroche, Alma Tadema and Millins, can be had for a few shillings. These can be framed at home with broad strips of mahogany, that will contrast well with the creamy tint of the paper. Smaller pictures should be mounted and framed with a plush mat of olive-green, crimson, or duck's-throat blue. But do not make the mistake of overcrowding a room with ornaments, giving it the appearance of a bazaar or shop. Bric-a-brac and dainty bits of needle work give a great air of comfort and refinement, if not overdone. A touch of yellow is necessary to the beauty of every apartment, and, when possible, have an open fire, which is the very soul of home. A richly tinted jar or vase rightly placed, will often give expression to a whole room, while growing plants are always desirable. Never place natural flowers in a vessel ornamented with flowers. Goethe says "Art is called Art, because it is not Nature," and we cannot expect to bring painting, no matter how well done, close to Nature without the former suffering somewhat by the contrast.

A Scrap-Receiver from a Fan.

The scrap-receiver or catch-all seen in the engraving, is easily made from an old Japanese fan. Remove the fastening which holds the fan-sticks together at the bottom, and secure them with a strong thread. Cut away the side-pieces. Run a ribbon alternately through the loose part of the fan, and fasten it on the inside. Pass a thread through each fold at the top, and draw it to the size desired. Make a cornucopia of paste-board to fit inside the covering. Cover neatly with Silesia. Hang the receiver with a silk cord or narrow ribbon. Finish it at the bottom with a bow of broad satin ribbon. Also place one near the



A RECEIVER FROM A FAN.

top. If the ribbon employed is narrow, make many loops and ends to the bow.

A very neat covering for a flower-pot can be made of a fan, by cutting the sticks away close to its body, and running a stout thread through each fold at the top and bottom. Place the fan around the flower-pot, and tie it in position.

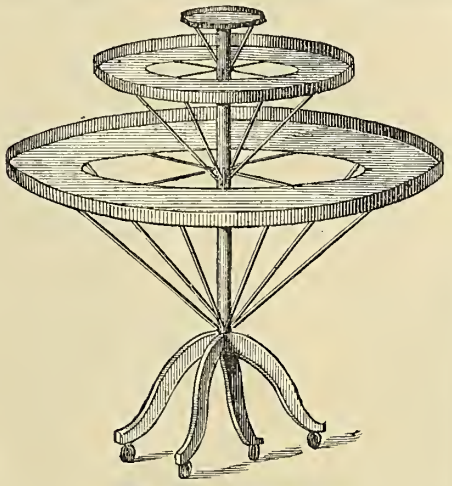
VIRGINIA CORN BREAD.—One quart of white corn meal, one teaspoonful of salt, two eggs and a dessert spoonful of butter. Scald the meal thoroughly with boiling water. Then add the butter and eggs (well beaten), and lastly a half-pint of milk. If this does not make the batter thin add more milk, for this is a soft-bread, requiring a spoon in serving. Bake twenty minutes in a very hot oven.

Make Your Home Attractive.

Can we do too much to make home healthful, pure, and beautiful? It is especially woman's mission to do this, and to what nobler work can any woman aspire than that of moulding the characters of the boys and girls to become the men and women who are to fill responsible positions in private and public life. We are often shown some cheap, unattractive dress, bought "just to wear at home," and a glimpse is frequently had of some wife and mother in the morning, with hair uncombed, frizzes still in papers, loose wrapper without collar or ribbon, etc. This, she says, is "well enough for home." In her afternoon promenade, stylishly and becomingly dressed, we should hardly recognize her. In these days, when a pretty print or muslin dress can be bought for five or eight cents a yard, cambric and satteens in choice colors for fifteen cents, or cotton and wool fabrics for suits at twenty-five cents, there is little reason why a lady should not be prettily dressed when about her work at home. If the warm, damp weather takes the curls all out of her frizzes, a few moments should be employed after the family are scattered to put them up again. A little more trouble and expense will more than pay, if the little children are overheard to say, "Doesn't mother look sweet?" Boys, especially, are very early influenced by the surroundings of home. Happily the old custom of having a "best room" shut up, except for weddings, funerals, or occasional company, is fast being abandoned. Now the home rooms are all thrown open. Sunbeams are welcomed, for it has been found, that it is a choice between them and malaria, or disease in some form. All the best things are not crowded into one room, and the others left bare and shabby. Doors are removed, and curtains or portieres, hung on brass or stained rods, divide halls and rooms. The curtains are made of a variety of materials. There are heavy striped and figured goods, which come for this purpose, but plain goods with broad bands of contrasting color are richer. Double-faced canton flannel is the best cheap material. Dark blue or garnet is handsome, and bands of strips used for saddle-girths, or some kinds of coach trimmings, are very effective upon them. Often one wishes a curtain between a large and small chamber or dressing-room. Cretonne is best for this. Screens used for this purpose are very useful and ornamental, and may be very expensively or cheaply made. A clothes "horse" makes a good frame when stained or ebonized. If it has three panels, each should be different. Painting and embroidery are very handsome, but they are expensive in time and money. Rich wall paper with dado and frieze, if the patterns are carefully selected, make a very handsome screen. A small one of plain felt, with a bunch of peacock feathers in one corner, is pretty. Coarse canvas-work, canton matting, painted roughly, or embroidered with coarse worsteds; cretonne, with figures outlined with crewel or silk; Japanese or Chinese crape pictures with velvet borders, are some of the other designs used. In nothing does good taste in the home manifest itself so much as in the ornamental furnishing. To do without it altogether, makes a room look bare and uninviting, even if well furnished. Too much of it is even worse in its effect. A few well selected ornaments for the parlor are in much better taste than many cheap ones. Books are in place almost everywhere and pictures also, but one had better go without the latter until they can be purchased one by one from among the best. Copies of fine paintings—engravings, can be readily found to meet the taste and purse of those who cannot afford to buy the originals. Marble topped tables, by some called "parlor tombstones," are discarded, and table covers of all descriptions are used. Bureaus are furnished with covers, pincushions, handsome bottles, and a jewel-case. Especially in table furnishing should the best that one can afford be provided. It used to be the ambition of most ladies to have a plated silver tea set, if they could not have a solid one. Now these are set aside, and glass and china, of which no two pieces need be alike, take their place. This involves some trouble, for a lady must take such things into her own care, if she would preserve them, but is any trouble too much to make home more attractive? ETHEL STONE.

A Circular Flower-Stand.

For the upright center-piece of the flower-stand shown in the engraving, use a stout scantling, two by two inches at the bottom, and tapering towards the top. To this, bolt four hard-wood legs, which in shape and position resemble those seen on many center-tables. Two circular shelves about eight inches in width, are supported by four braces running through the central support. To keep the shelves firmly in place, run two stout wires across the center at right-angles. On the top of the support, place a circular shelf for one large flower-pot, or two or three small ones. The lower shelf is three and one-half inches across, and comes up to within six inches of the window sill. A railing is placed around the outside edge of each shelf, to prevent the flower-pots from slipping off. This stand will enable one to arrange plants attractively.

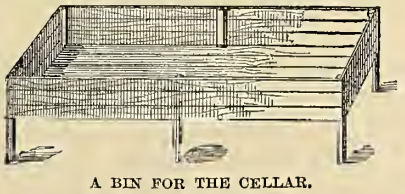


A CIRCULAR FLOWER-STAND.

With casters under the legs, the stand can be easily turned around, and all the plants given sufficient sunlight, without moving the flower-pots. This circular plant-stand may be quickly and easily made by any one familiar with ordinary tools.

A Cellar-Bin.

The engraving shows a cellar-bin we have used for years and can highly recommend. It is twelve feet long and four feet wide, with six posts. A bin sixteen feet long requires eight posts, four at the corners, and two intermediate on each side, each three and one-half feet long. A floor is nailed on the cross-pieces, and the sides and ends are eighteen inches high. The bin is easily made deeper by using longer posts and more siding. Use no straw, as it harbors mice. Pour in the apples and potatoes carefully, and they will not bruise. Two or more kinds of fruit or vegetables may be separated by partitions. The bins may be placed against the cellar wall, and a board laid on the top at the front, makes a convenient shelf. A bin sixteen feet long, four feet wide, and eighteen



A BIN FOR THE CELLAR.

inches deep, requires two two by four scantlings, fourteen feet long, and one hundred and twenty-four square feet of inch-boards, each sixteen feet long. A twelve-foot bin requires two two by four twelve-foot scantlings, and ninety-six feet of inch-boards, twelve feet long. J. M. S.

A Convenient Corner-stand.

A neat, serviceable, and quickly-made corner-stand is shown in the engraving. The top and shelf, *b*, *b*, figure 1, should be twenty inches wide. When boards of the proper width are not at hand, nail two narrow ones together with cleats on the under side. The square legs, *a*, *a*, are an inch and a quarter thick and thirty inches long, secured in

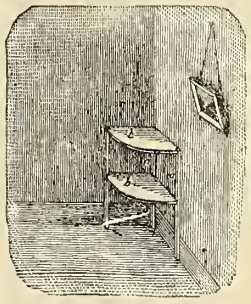


Fig. 1.

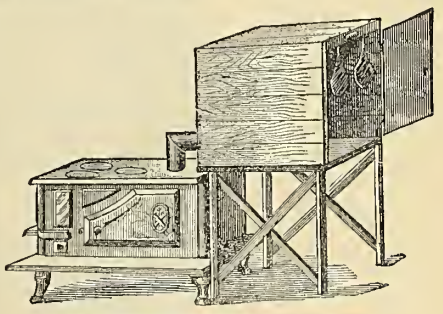


Fig. 2.

place by nails or screws. If the baseboard of the room projects, the legs should be fitted to it, allowing the top to press firmly against the wall at all points. Tack a cloth curtain around the top, of sufficient length to reach the floor. The stand may remain plain with no cover, be covered with oil cloth, or painted as desired. There may be two shelves below the curtain, which will be very convenient for storing small articles. L. D. S.

A "Smoke-House," or Smoke-Box.

An easily extemporized "smoke-house" is shown in the engraving. An old box-stove is placed in the back-yard, with a dry-good's box mounted on a frame close at its rear. The stove and box are connected by an elbow of stove-pipe. Place hooks in the top of the box upon which to hang the hams, etc. One end of the box serves as a door. The fire in the stove is easily governed by a draft-slide in front. An opening in the rear of the box over the door, allows the smoke to pass out when necessary; otherwise it is closed by a slide. When a smoke-house of this kind is once used, we are



AN EXTEMPORIZED SMOKE-HOUSE.

sure no one will thereafter willingly resort to old barrels or hogsheads, which frequently are set on fire, injuring the meat that is being smoked within.

NICE SPICED ROUND OF BEEF.—Rub the round well with a mixture of salt with one-third its bulk of saltpetre; let it stand two days and wash it off. Then for fifteen pounds mix well together a pint of salt, half pint brown sugar, half tablespoonful of red pepper, half ounce each of cloves, mace and allspice, with a teaspoonful or more of saltpetre according to its purity and the high red color desired. Take out the bone and rub the spice mixture all over, inside and outside. Put in a crock or any earthenware vessel that will about hold it, and turn and rub well with the mixture daily for ten days. If the exuding juice does not cover it either make brine enough out of the same materials to cover the whole, or turn it over every two days for three weeks, when it will be ready for use. Stew it slowly all day in its own liquor. Then pack in a vessel that just holds it, with a heavy weight upon the cover during a night.

BOYS & GIRLS' COLUMNS

At the Ferry.

Down the woodland path comes Queenie, pretty Queenie! with her bonny brown eyes and fair waving hair! the purple haze of the summer twilight enwrapping her as with a mantle, and the last rays of the setting sun glancing o'er her white dress, pale cheek, and the gay-hued flowers she is carrying to grandma, who lives in the old red house just across the river. The sleepy birds twitter a happy lullaby in the tree tops, the water-lilies float calmly on the rippling stream, and all nature seems to rejoice at the evening hour. As Queenie reaches the little rustic pier jutting out into the river, she takes a small whistle from her pocket, and sends a clear, sweet signal ringing across to the old boatman, to come and row her over the ferry. A sad, dreamy look creeps into her dark eyes, and the droop of her rosy lip shows that her thoughts are not all without alloy, for "the thoughts of youth are long, long thoughts!"

"If it were but Ronald coming to row me over," she sighs, as memory flies like a white bird to the friend and playmate of her earliest years; the brave, handsome lad, who twelve months before had left his country home, and gone to seek his fortune in the great city. "How happy we were together! and what merry rambles we had in the greenwood, and what pleasant sails on the dear, old river! The ripest berries and brightest leaves were all for me, and together we sought the nest of the earliest birds, and the sheltered nooks where the May flowers first breathed forth their spicy fragrance.—Sweet little secrets, dear to our childish hearts! How Ronald always teased old Carl to let him row me across the river to school, and how we annoyed the old man by lingering on the way, to gather the great golden-hearted lilies, or watch the tiny fish dart through the blue water! Sometimes he was 'Prince Charming,' and I his 'Lady Fair,' whom he carried away to his beautiful castle in Fairyland; and he would heap a wealth of wild flowers at my feet, and crown me with a wreath of woven oak leaves. He always ended the play by saying, 'Just wait, Queenie, until I am a man, and you will see what I can do,' and then bending to the oars while I reclined in the stern of the little boat, he sang merrily,

'And jewels so fair, you shall twine in your hair,
And a lady you'll surely be.'

While I laughed, and pelted him with pink and white laurel blossoms, telling him I was quite content to be plain little Queenie, so long as he came to row me over the ferry. But, ah me! I fear he will never come again, for it is six long months since a word has come from that big, cruel town, that has swallowed up my bonny, golden-haired, little boatman; and there is none but crabbed old Carl to row me across. Now I never loiter by the way, but hasten as fast as ever I can," and something that glistened like dew-drops fell upon flowers she was carrying to her dear grandma.

The gray shadows deepen and darken, and Queenie has to strain her eyes to catch a glimpse of the little boat now bounding toward her from the opposite shore. "Old Carl's rheumatism must be better," she thinks, "for he never rowed so fast before," and she prepares with a sigh to clamber down by herself into the rickety little boat, for the ancient ferryman is anything but gallant. Nearer and nearer it comes, and the girl covers her eyes with her hands, to shut out the wrinkled old face, if only for a moment, but—is she dreaming? A merry laugh sounds in her ears, her hands are pulled quickly down from her eyes, and a happy boyish voice cries: "Will you not look at me, Queenie? I came back to row you over the ferry."



WAITING AT THE FERRY.

Drawn and Engraved for the American Agriculturist.

Jack, the Bridge Mouse.

S. C. A.

"Mary, we are to have a visitor next week; I forgot to tell you before," remarked Farmer Ellis, as having finished his supper, he leaned back in his arm-chair, and smiled contentedly on his wife at the other end of the table.—"Who?" asked Mrs. Ellis in some surprise, and "Oh! pa, who is it?" exclaimed three eager childish voices.—"I don't know his name," said the farmer, "but this afternoon I met the minister, and he asked if I would entertain one of the children sent out by the 'Fresh Air Society' for a couple of weeks."—"But you did not say yes?" cried his wife.—"Of course I did! Why! I should be ashamed to refuse a poor little chap a home and glimpse of the green fields for a few days."—"Yes, but think of the association for our own children," and Mrs. Ellis glanced anxiously at the bright, innocent faces round the board. "These boys and girls come from the lowest slums of New York, where they must see all forms of misery and wickedness."—"The more reason why we should do them good when we can, and give them a happy time while they are with us," said the kind-hearted farmer, "and I hope Harry and May will take pains to be very kind to the poor little one, whoever he is."—"Yes, indeed we will," cried the two elder children, whose sympathies were easily enlisted, while four-year-old Lilly, the baby and pet of the household, nodded her golden head, lisping, "and me too! me show poor 'ittle boy my kittens!" for a trio of gray and white kittens housed in the wood-shed were at present her dearest treasures.

As it seemed settled, Mrs. Ellis made no further objection, but she felt many misgivings about letting this black sheep in among her carefully tended flock, although her motherly heart was filled with pity for the wretched little waifs, whose one bright spot in the whole year is their fortnight spent in the country. So five days later, Harry and May stood one fine summer evening on the platform of the little railroad station, eagerly watching for the incoming train that was to bring them "their boy," as they liked to call him. A visitor of any kind was a rarity in their quiet home, and they had planned all sorts of fun and frolics for the next two weeks. It came at last! the iron horse steaming and puffing like some monster in distress; and from the long line of cars alighted such a bevy of little folks, in shabby though neat clothing, wearing the blue ribbon badges of the Society, and with eager, expectant faces, that the children were quite puz-

zled. "Which shall it be?" whispered May in despair, as she viewed the group, of all ages and descriptions. But there was little time to choose, for the hospitable farmers and their wives had flocked from all the country round, and were speedily selecting their guests.

"That is a fine looking boy," said Harry, pointing toward a lad about his own age, in a torn straw hat, who was bidding "good bye" to a little girl, and without more ado, he stepped forward and said, "will you come with me!"—It was a bright sunny face that turned to meet him, and a pleasant voice that gladly assented, while the little street Arab showed a sort of rough courtesy in the way he pulled off his ragged hat, as his young host said, "this is my sister May, and I am Harry Ellis."—"My name is Jack Carter, but the fellers generally call me 'Bridge Mouse.'"—"Why?" asked May, opening her brown eyes in surprise.—"Oh! cause when the papers don't go off sharp, I mostly sleeps round the Brooklyn Bridge; and some first-rate places there are under the arches, too."—"Are you a news-boy?" asked Harry,—"Yes, I cries 'Tribune, World, and Eve'nin Telegram' for a livin', and when times is good, a collision on the Elevated, a panic, or anything lively, I jest live in clover, git a fifteen-cent dinner, and put up at the Newsboys' Home, in style. But is this the real, true country."—"Yes," said Harry, "and old Peter is waiting to take us home to supper," and he led the way to the two-seated wagon, drawn by a steady-going white horse, in which they were soon rattling briskly over the road toward the Ellis homestead; while Jack kept Harry and May in continual bursts of laughter by his quaint remarks.—"How good it smells," he exclaimed, as he inhaled the air, sweet with the odor of clover and new mown hay, "jest like a big Washington Market 'bokay.' Who owns all them flowers?" and he pointed to a great field of yellow and white daisies.—"You and I as much as any one," laughed Harry, "they're wild."—"Really! oh! how I wish Dicky could see 'em, he loves posies so. Dicky is my brother, and blacked boots till he was run over one day, and took to the hospital; but won't the p'liee be after yer if yer go on the grass?"—"No indeed, there are no policemen here."—"It's a heap nicer then, than Central Park, for the cops is allers a tellin' yer to move on, jest as though there was any place to move to."

So gaily chatting, they felt very well acquainted before the farm-house was reached, where Mrs. Ellis stood in the doorway, and little Lilly came running down the path, holding up an apronful of wee pussies as a token of welcome. It was many a day since Jack had sat down to so bountiful a meal as awaited him that evening, and Mr. Ellis said "it did him good to see the way the boy enjoyed his brown bread and berries."

"Is this milk?" he asked, as a creamy glassful was set before him. "It tastes more like butter, New York milk is blue."—"I guess the pump is their best cow then,' laughed the farmer, "but go out with Harry, and see what our little Alderneys can do." Jack accompanied his new friend to the yard and watched with wonder the streams of rich milk that fell foaming into the bright tin pails.

"Are they milk all the ways through?" he asked, as he ventured to pat one of the mild-eyed kine, at which question Harry almost rolled on the ground with merriment.

"What a lot of canary birds, too!" he cried, as a brood of tiny, golden chickens hurried by, in the wake of a mother hen; "do they all sing?" and was greatly surprised to learn that these fluffy yellow balls, were only baby fowls.

But in some things Jack was very bright, and when the lamps were lighted, he entertained the family with funny stories of city life; and keen, shrewd remarks, greatly to the amusement of Mr. Ellis, who delighted in drawing him out. Lilly was attracted to him at once, and the two soon became warm friends; the little one trotting after him wherever he went, while Jack was always ready to carry the wee lady through the woods, or play games with her on the smooth lawn. It was a happy time for the little newsboy, and he grew fat and rosy, while Mrs. Ellis never had cause to regret his coming into her household. What picnics they had in the shady, green woods! what frolics in the hay-field! what fishing and swimming in the creek! and what jolly rides behind old Peter! It seemed to Jack that the days fairly flew away, until at length, the last one had dawned, waxed and waned, and he sadly packed his little carpet-bag, to which Mrs. Ellis added a suit of clothes belonging to Harry, who himself brought a collection of fish-hooks, lines, and birds' eggs, and other things dear to the boyish heart. May came with a plate of cakes and tarts of her own baking, and little Lilly toddled in with a great bunch of buttercups and daisies, for "poor Dicky in the hospital," of whom she had heard many interesting tales.—"Wonder if Mother Bridge will be glad to see me back," said Jack to himself, as he tumbled into bed, "but I know she won't give me as soft a pillow as this."

Regret, however, could not keep such a hearty, tired boy awake, and he slept soundly, until aroused by a confused murmur of voices, and a sense of suffocation. He sprang up, and was startled by a lurid light, while the dread cry of "fire! fire!" fell upon his ears. He hurried on his clothes, and then groped his way through clouds of dense, black smoke, down to the ground floor, and out upon the lawn. Here he found the family and neighbors running hither and thither in mad confusion, while the flames shot heavenward, and the house seemed to wither beneath their fiery tongues.

"Are all safe?" asked Jack of Harry.—"Yes, mother and May are just over there."—"But where is Lilly?"

At that moment a loud cry arose, and looking around, Jack saw every eye fixed upon an upper window, where now appeared a golden head, while two white arms were outstretched beseechingly, and a piteous voice cried, "Mamma, mamma!"

It was too evident that in the confusion and fright Lilly had been left asleep in her crib, each parent believing her with the other. With a groan, Mrs. Ellis darted forward, but was held back by many hands, as every instant the roof was expected to fall. "A ladder! a ladder!" was the cry, and several started in search of one.—"They will be too late!" exclaimed Jack, and throwing a blanket over his head, he boldly dashed into the building.

It seemed ages to the spectators before the newsboy succeeded in reaching Lilly's side, but once there, he appeared to know just what to do. He had too often followed the engines, and watched the brave firemen, to be at a loss in such an emergency. Pulling the sheets from the bed, he tore them into strips, knotted them quickly and securely togther, and then tied one end around the little girl's waist.

"Now be ready," he shouted, as lifting the child to the narrow ledge, he began gently to lower her towards the ground.—"Oh! Jack, I'se afraid," cried Lilly, "you come too."—"Yes, darling, presently," but just as the little one was clasped in loving arms, a loud crash sounded on the night air, a rush of flame and smoke obscured the scene—the roof had fallen, and the young hero, where was he? Not dead, fortunately not dead, though many thought him so; when a ladder being brought, the men ascended and carried down the senseless and blackened form of the poor little "Bridge Mouse," for although stunned, he was not crushed by the falling timbers, and he had fallen across the window, where a little air saved him from suffocation. But he was badly injured, and for weeks he lay weak and helpless in a neighbor's house, carefully tended by Mrs. Ellis and May, who could not do too much for the preserver of their darling Lilly. And at last, slowly and painfully, he came back to life and strength; but when he walked out for the first time, he found the leaves turning to russet and gold on the trees, and the frame-work of a new house rising on the charred site of the old one.

"Mother Bridge will think that I have deserted her," he said with a little sigh, "but I shall soon be able to go back now."—"Not if you prefer to remain," said Mr. Ellis, "we would like to keep you with us, and the home you have saved from desolation, is your's, if you choose to stay, for we feel we can never repay you."—"Oh! thank you sir," cried Jack, while a radiant smile of delight flitted over his face. It was, however, succeeded by a cloud, as he hesitated, and then said slowly, and with an evident effort, "But I couldn't leave poor Dick. I am all he has in the world, and he needs some one to fight for him, now he's lame, and to cheer him up. I'd love to stay, but I must go back to New York and Dick." Tears however filled his eyes, and Mr. Ellis, too, had to wipe his spectacles, and turn aside to hide his emotion, for he fully appreciated the boy's sacrifice for his afflicted brother. So Jack returned to the City, but not to his old life, or his bedroom under the Bridge. Mr. Ellis secured him a position in a store, that placed him in comparative comfort, while he and Dicky have a standing invitation to spend every summer at Ellis farm, where Mrs. Ellis is now always ready to receive any number of city waifs. She says you can never tell when you may entertain an angel unawares.

The Doctor's Talks.

One of my young friends finds a great many shells of fresh-water mussels or clams, and wishes me to tell something about these and other shells.

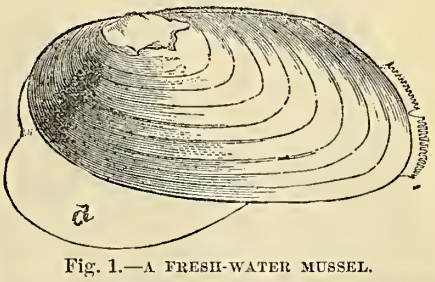


Fig. 1.—A FRESH-WATER MUSSEL.

I have never seriously taken up the study of shells. I once heard Agassiz say that one "could learn no more about the animals from studying their shells than he could about people from a collection of their cast-off great coats." The great naturalist had no very high opinion of those who made collections of shells merely because they were rare and valued their specimens according to the prices they paid for them.

THE FRESH-WATER MUSSELS.

These, also called clams, are common in rivers, ponds, and lakes, and their empty shells are frequently to be found along the shore. You know that the shells of snails are all in one piece, while the shell of the mussel is in two parts, or valves, hinged together at one edge. This difference in the shells is accompanied by as great a difference in the animals that they cover. Shells like those of the snail, are called univalves, while those of the

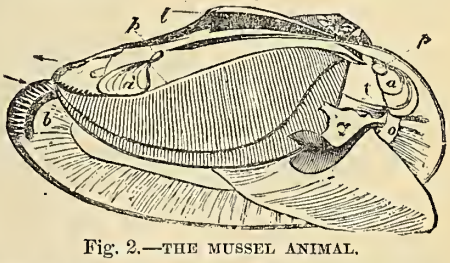


Fig. 2.—THE MUSSEL ANIMAL.

mussels, being in two pieces, are called bivalves. In the snail the animal has a prominent head, but in the mussel the head is so indistinct that it can hardly be made out, and the animals are said to be acepbalous, or headless. If you have a live mussel, or a pair of shells still held together, you find that they are united by a hinge of a dark-brown substance that is elastic, and when dry is hard and brittle. This hinge is barely shown in figure 1. The light spot at the left of the hinge is called the "beak" (*umbone*). This was the starting point in the growth of the shell, but later it often gets worn away. The lines upon the shell show the different periods of growth; they all start from

the beak. Holding the shell with the beak from you, the end of the shell farthest from you is the forward end, and that nearest to you is the hind end, while the half shell at your left and right hand will be the left and right valves. If the live mussel be placed in a basin of water, after a while there will be projected from its forward end a whitish, fleshy body, *a;* this is the foot of the mussel, and by its aid the animal moves through the sand, making a strong mark or furrow. These marks are often seen in the sand, and the mussels may usually be found by following them. If all is perfectly quiet, the shells in the basin will open a little, and at the rear end will appear a little fringe, *b*, *c*, figure 1. If this is carefully watched you can see that this fringe surrounds two openings; by the motion of small particles in the water, it will be seen that a current is steadily passing in at the lower and out at the upper orifice. The current carries in animalcules and other kinds of food, and as it passes over the gills of the animal, supplies it with breath from the air dissolved in the water.

The animal itself is shown in figure 2, in which the right-hand valve or half-shell is removed. Within the shells, and lining them, is a thin membrane called the "mantle;" this is indicated by the lines running towards the lower edge of the shell and increases its size. The surface of this mantle next the shell provides the pearly substance that lines it. We see here, the foot, and at *b*, the fringe around the openings already described. The largest object within the shell, marked with strong cross lines, is the gills. The mouth is at *o*, a queer place for it, just above the foot. In this figure you have a better view of the ligament, *l*, that hinges the two valves together. The tendency of this is to open the shells. The animal holds them together by two strong muscles attached at *a*, *a*, and passing to the other shell. When these muscles are relaxed, the shells spring apart. In the oyster there is one such muscle, incorrectly called "the eye." The oysterman cuts this with his knife and the shells may be readily opened. To open the mussel, these two muscles must be cut.

"DIAMOND STONES."

Lennie J. Rowell, Kans., sends me several small crystals which he says, from their shape, are called "diamond stones." They are flat plates, rhomboidal in shape, and from the thirty-second of an inch to half an inch across. He properly notices that the stones "are all of the same bevel," and says: "Please explain these things."—The crystals are of a dull flesh color, when held up to the light are partly transparent. By reflected light they have a pearly lustre. As to explaining these things, that is impossible. We can only accept them as a part of the great order of nature. Minerals when pure have definite forms, a peculiarity stamped upon them by the Creator, and which allows each mineral to be recognized. The crystals sent are Felspar. A very common and important mineral, and one which presents a great many varieties. It forms a large part of the valuable granite rock.



A GROUP OF EAST INDIA SNAKE CHARMERS.

Engraved for the American Agriculturist.

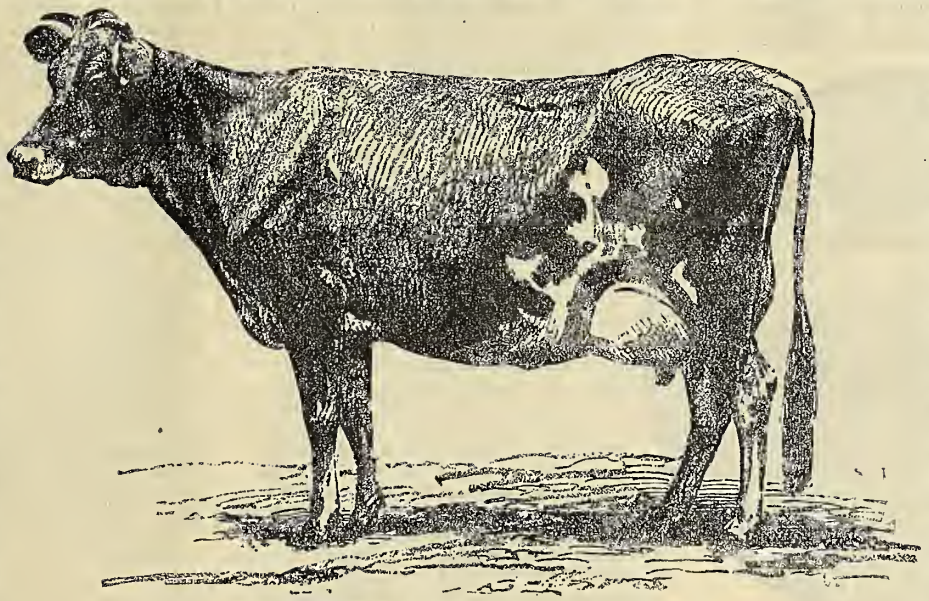
Snake-Charming.

Showman and snake-charmer, James Reilly, became careless while exhibiting his three Diamond-back rattlesnakes at High Bridge, Upper New York, a few days since, and was stung by one of them. He died in the New York Hospital, repeated large doses of whiskey proving unavailing. Very frequently, from Pike County, and other portions of Pennsylvania, cures of rattlesnake bites by whiskey are reported, and it is generally supposed to have been regarded as an antidote for rattlesnake poison, when taken in time. The death of Reilly shows, however, that it cannot be relied upon. The common treatment in Australia and India for the rattlesnake is the injection of ammonia into the veins of the arm. While we are unable to assure our readers that this is an antidote and cure, it is believed to be so in the countries named. We present herewith an engraving of the snake-charmers who are frequently seen in India.

The snakes shown in the illustration are very different from any found in this country. The Portuguese gave to the species the name "Cobra de Capello," a snake with a hood, or hooded-snake. The creature, a native of the East Indies, is able to stretch out that portion of its body just below its head in the manner seen in the engraving; it does this when attacked or excited in any way, and can raise itself to a more or less erect position, supporting its body by means of the tail. Its appearance is then threatening, and it is not surprising that the natives have a great fear of the serpent, especially when its bite is often fatal? The snake is between three and four feet long; its general color is brownish-yellow. The hood has various markings of white and black; these are said to sometimes resemble spectacles, as seen in the central reptile in the picture. But what are the snakes doing in the baskets, and what have the men to do with them? The jugglers in India claim that they are able to charm the reptiles, and render them harmless, and snake-charming, as it is called, is a popular exhibition. The jugglers go in parties from place to place, carying the snakes in baskets. When they are charmed by the music, the reptiles are handled without attempting to bite. All this is very wonderful to those who do not know that the Cobras have had their poison fangs extracted. The many books of travel in India give accounts of these exhibitions of the snake charmers. Some writers state that the performers, by skill in handling the reptiles and agility in avoiding their attacks, escape injury. Others, on the other hand, assert that the jugglers admit that the fangs are removed. The serpents are trained to move in time with the music, and perform a sort of rude dance. The snake feeds upon frogs, toads, and other small animals, and often enters houses in search of rats.

Milk, Butter, and Beef.

Here are two famous cows. The butter-maker, figure 1, is of the highest type of excellence. A native of the little Island of Jersey, dropped in January, 1881, she closely approaches perfection in every point. Her head and forequarters are neat and deer-like; her disposition, as shown by the full, mild eye, is quiet and passive; her constitution, as indicated by erect carriage, straight back, deep and broad chest, broad loin and low flank, is good. Her capacity for food is great, as shown by her capacious paunch; and withal, her excellence as a milk-yielder, is indicated by the full development of the hindquarters, the perfection of the udder and teats, and the conspicuous milk veins upon the abdomen. The promise thus given in her form has been carried out, for as a three-year-old she made sixteen pounds fourteen and a half ounces of butter in a week, and has been doing still better since. This cow was imported less than a year ago by Mr. T. S. Cooper, of Pennsylvania, as Fill-pail 2d, with her dam, Fill-pail, both cows of extraordinary excellence, and deep in the famous blood of Welcome and Coomassie on the side of her sire.

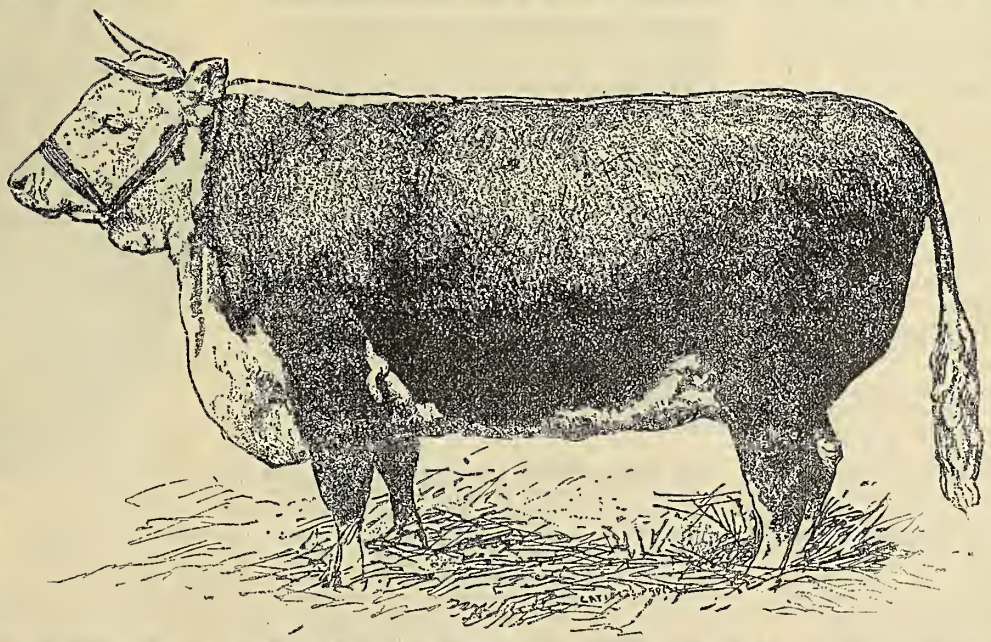


"FILL-PAIL 2D," A COW FOR MILK AND BUTTER.

Re-engraved from Agricultural Gazette (London) for the American Agriculturist.

Mr. Cooper has won great fame as an importer, and for investigating pedigrees on the Island. American Jersey breeders owe him a great deal for the work he has expended upon island pedigrees, without which we really would not have known much about the blood sources of many of the popular modern strains, beside the little that is given in the herd-books. Fill-pail 2d was recently sold at auction for a high price.

The other portrait is of the famous Hereford cow, Leonora. The Herefords are one of the typical beef breeds of England, and while Shorthorns are claimed as valuable for both beef and milk, and among the Devons great milkers are not rare, and good milkers and butter-makers are the rule, the Herefords are in comparison nearly worthless as milkers, and famous for rapidity and economy with which they lay on flesh, and for their nearly perfect and economic form. The muscles are developed just where the meat brings the highest price, and the fat laid on with that characteristic evenness, which marks the most perfect beef animals. This is a peculiarity rather of the individual than of the breed, and yet more often found among Herefords than among animals of any other breed. The reader will note the general length, fullness and evenness of the carcass, the squareness of the hindquarters, the depth and prominence of the brisket, and the remarkable level character of the belly-line. The breadth of the back and loin is indicated rather than seen, but the enormous length and breadth of the thighs, the masses of flesh over the ribs, the delicacy of the bone, and smallness of what in butchers' parlance is called offal, are most conspicuous. "Offal" is all except the tallow and hide which cannot be disposed on the market stand. This includes the head, tail, feet, and viscera. It is easy to see that if these parts were removed, the carcass would present an almost solid mass of beef.



"LEONORA," A COW FOR BEEF.—*Re-engraved from Agricultural Gazette (London) for the American Agriculturist.*

American farmers need to make their selection between the beef breeds, the milk breeds, or those which combine both milk and beef. Whether it is better to turn a certain amount of fodder and grain into butter, or cheese, or beef, will really depend upon the condition of the market. Where there is a good market for milk, the highest profit is in that. Outside the milk range, the market is for butter or cheese, or both. This involves labor, but the labor is usually well rewarded. Beyond the labor line, where milk cannot be manipulated, it must be used for raising calves, and the chief product of the farm or "range" must be beef. The beef of the plains forces down the prices of common beef throughout the country, even though it has the disadvantage of thousands of miles of transportation, more or less. Hence it increases the importance of dairy interest, and of dairy cattle. The uses of cattle determine their characteristic form. In judging of dairy cattle at shows, it is absurd to allow fatness to warp the judgment. Milk is the criterion—ability to produce milk or butter, while in passing upon the beef animal, the judge must look to beef points, ability to lay on fat evenly, early maturity, and the development of the choice parts. It is not an easy thing to judge a beef animal.

The Pig as a Plowman.

Farmers everywhere are influenced by the construction of railroads and other means of quick transportation, but none of them more so than those who grow meat as a branch of their farm operations. The pork-raisers in the older States come in competition with the swine products of the prairie States, where the pig is a condenser of the corn crop, and among the most economical methods of sending that cereal to market—yet even with cheap freights, it will not do for Eastern farmers to abandon the sty, and look to the West for their salt pork and hams. There are economies to be practiced in swine raising that will make the Eastern farmer successful in his competition with the West. He has the protection of freights over long distances, which can never be very much reduced. The home market will always be remunerative, so long as pork products are in demand. His lands need manure, and that which is made in the sty, and under cover, is among the best of the home-made fertilizers. Herding swine upon pasture, or old meadow, that needs breaking up, is not very much practiced, but is one of the best methods of raising pigs. They are as easily confined within a movable fence as sheep, utilize the grass and coarse feed quite as well, and perform a work in stirring the soil that sheep can not do. The nose of the pig is made for rooting, and we follow nature's hint in giving him a chance to stir the soil. A movable yard, large enough to keep two pigs, can be made of stout inch boards, about fourteen feet long, and six inches wide. For the corner posts use two by four inch joists. Nail the boards to the posts six inches apart, making four lengths or panels four feet high. Fasten the corners with stout hooks and staples, and you have a pen or yard fourteen feet square, which is easily moved by two men. If you place two fifty-pound pigs into this yard they will consume nearly all the grass and other vegetation in it, in three or four days, and thoroughly disturb the soil several inches in depth. When they have done their work satisfactorily, the pen can be moved to the adjoining plat, and so onward through the season. The advantages of this method are, that it utilizes the grass and other vegetation, destroys weeds and insects, mixes and fertilizes the surface of the soil about as well as the ordinary implements of tillage. In the movable yard there is thorough work. Even ferns and small brush are effectually destroyed. Worms and bugs are available food for the pig. And it is not the least of the benefits that the small stones, if they are in the soil, are brought to the surface, where they can be seen, and removed. The pig's snout is the primitive plow and crow-bar, ordained of old. No longer jewel this instrument, but put it where it will do the most good, in breaking up old sod ground, and help make cheap pork.

Editorial Correspondence.

From the North-west.

Abundant Harvests.—The golden horn of plenty is pouring in its richest treasures upon our land. Wherever we have gone, through Ohio, Michigan, Illinois, Iowa, Wisconsin, Minnesota, and Dakota, we have found the tillers of the soil happy in the prospects of luxurious crops. Here corn has suffered from the drouth; there hail stones as large as walnuts,



"OVER THE PRAIRIE GOING."

have cut down the standing corn, or a sweeping cyclone has leveled entire fields of grain. But these are exceptional cases. An enormous wheat crop will be harvested, and if no untimely frosts, as last year, overtake the North-western cornfields, they will give satisfactory yields. While those engaged in commercial pursuits have complained, and are still complaining, of the general dullness, the tillers of the soil are apparently vouchsafed overflowing granaries.

No "Emigration Boom" this Year.—The wonderful emigration to Western Minnesota and Dakota during 1882 and 1883 apparently spent itself last autumn, and the remarkable scenes which a year ago quite took one's breath away, are not witnessed this year. The cold winter, "hard times back East," and the failure of the railroads to advertise the country as much as usual, are among the various causes assigned by the settlers for this halt in emigration, when there is still much land to be had. But we infer, as above stated, that the boom in this direction spent itself for the time being; and now during 1884 there is considerable migration to Oregon, Washington Territory, and to Western Nebraska. Notwithstanding this lull Dakotaward, there has been a steady, healthy growth during the present spring and summer, and we shall subsequently describe in detail the various villages, scattered along the network of the Milwaukee & St. Paul Railroad System, having last autumn visited and described those on the lines of the Chicago & Northwestern Railroad, as far west as the Indian Reservations, beyond the Missouri River.

Few Settlers Returning.—Ten years ago, when the dazzling stories told in the circulars of some of the railway companies, and elsewhere, allured many people from the older States to the Far West, without sufficient funds, great suffering ensued. Then scorching drouths and grass-hoppers sent thousands of them back to their old homes, broken in spirit and poverty-stricken. Now, with a better knowledge of what is required, people are not disposed to migrate to the North-west without sufficient funds to tide them over the first year or two. Furthermore, there have been but few drouths and fewer grasshoppers these later years; but yet there are those who have returned because of the severe hardships they experienced during last winter in Dakota. Those must have indeed been trying times for the settlers in some portions of this vast territory, when the snow at times completely enshrouded their rude dwellings. But these experiences and vicissitudes the settler must expect. If he is not willing to encounter them with a stout, brave heart, he had better not go West. If, however, full of resolution, pluck, and determination, he goes to the front and surmounts these earlier difficulties, a few years, at the longest, will place him at a point of prosperity which perhaps he could not have attained in a lifetime further East. Push and patience be your motto.

Too Much Free Land for Individual Settlers.—"I think it would be much better if the Government gave but one hundred and sixty acres of land to every settler," said Mr. E. Martin, an old subscriber to the *American Agriculturist*, living near Manchester, Iowa, as we rode eastward from Mitchell, Dakota. "I would," he added, "allow no man to have over one hundred and sixty acres, and I would then compel him to put ten acres of this land in timber. Then I would exempt these ten acres from taxation. I would repeal the Tree-Claim Act, and the Pre-emption Act entirely. This would give each man only one hundred and sixty acres, which he could cultivate well, and would remove the temptation to him to get under the various Acts, too much land which he does not half cultivate. He would likewise then be removed from the temptation of allowing himself to be used by speculators in 'proving up' claims for their benefit." We found these views very generally shared by farmers on the border. And this is a question worthy of the immediate consideration of Congress. Now, by means of the Homestead Law, the Pre-emption Act, and the Tree-Claim Act, a settler can secure control of many hundred acres of land, the majority of which is likely to inure to the benefit of speculators purely. But if this were not the case, the fact that one settler can now secure so much land from the Government, will necessarily prevent a large number from *securing any*, inasmuch as all the land of value is being rapidly absorbed. Furthermore, the residents of these Border Lands are beginning to realize that small, well-improved farms are not only more valuable to the owners themselves, than would be large sections of unimproved territory, and that the small farm system enables the population of the Border States and Territories to increase much more rapidly. If a few settlers can come into a new country, and by means of the various Government Acts, each one secure an entire section (more or less) of land, naturally only a few are required to absorb the whole region.

Waiting for the Country to Catch Up.—When a new country experiences a boom in emigration, it brings along with it doctors, lawyers, bankers, dry goods merchants, grocers, and mechanics generally. They locate at the nucleus of a village, and the land-buyers at first have generally to employ all of them in one way or another. Business is consequently brisk for them. When, however, the tide of emigration recedes, and the land-buyers have scattered to their various prairie homes and become settled, the demand for the services of professional, business and trades-people diminishes. The village becomes dull; the hurly-hurly and excitement which characterized the boom, are gone, and the villagers who rely on the farmers, complain of very dull times, and begin to question whether the Far-West is such a great place after all. As the surrounding country, however, begins to develop, and the virgin soil yields crops to the tillers, money begins to flow into the villages. At first it was the money brought by the land-buyers from the older States; now it is the money made there "on the spot;"—domestic money, so to speak, as contrasted with imported. It continues to increase with the increasing agricultural development of the new region, and the villages and towns regain the activity which characterized them at first; that is, such towns and villages as pull through the reactionary period and are not abandoned. Every new region experiences this transition state. The villagers have to wait for the surrounding country to catch up, as it were, and during the waiting-period it is dull indeed.

Too many Farm Implements, and too little care taken of them.—In the great North-west, as hitherto in Kansas and Nebraska, the reckless purchase of farm machinery, and the failure to properly take care of it, is frequently noted. The new comer, because he can buy his reaper and other machines on credit, purchases freely, with the confident expectation that good crops will enable him to discharge his obligations; but if the crops are not so good, and he is unable to sell as much as he expected, he frequently gets in a close spot financially. Perhaps he has no building beyond a stable for his horses. Boards are expensive. He leaves his machinery in an open lot, with no cover, exposed to all the changing weather. It often results that he can not pay for his machinery, and, furthermore, it is much damaged sooner or later. Do not go to the western prairies to farm, unless you have enough money to pay for some machinery, and enough money to construct a proper shelter for it, after the season is over. It is an oft recurring and painful sight, as one rides over the prairie, to see these farm implements lying around loose in every direction.

Prairie Chickens Abundant.—Bevy upon bevy of young prairie chickens rose to flight on each side of the track, as our train sped down through Central Dakota, from Aberdeen, among the quiet settlements. Notwithstanding the cold weather of last winter, and other untoward causes, there is reason to believe that there will be a great abundance of birds this season. Legislation is doing considerable to protect them from the merciless destruction of pot hunters, who shoot them down for the mere pleasure of telling how many they have bagged. In making a tour through Utah a few years ago, we were impressed with the severity of the game laws, and their rigid enforcement. Utah leads the Western States and Territories in this respect. D. W. J.

Trouble with the Elm Trees.

Our subscribers in Flushing, Long Island, Passaic, N.J., and at many other points, are complaining of what is described as a new and dangerous insect, which is destroying the elm tree leaves. Some of the New York City daily papers devote much space to this pest, and express solicitude as to what the new insect may be. It is, however, not a new enemy, but, on the contrary, is the Elm Leaf Beetle (*Galeruca xanthomelæna*).

The Elms in the City of Baltimore, being sadly defoliated a number of years ago, the city authorities assumed that the trouble was due to the Canker-worms, and provided the trees with barriers of oil around their trunks. The insect causing the damage was not the Canker-worm, but the larva of the Elm Leaf Beetle, and the oil could no more keep this from the trees, than the sparrows, as both male and female insects have wings and can fly. The mature insect is a small beetle, a native of Europe, from which country it was introduced many years ago. It has become wide-spread, and is found in numerous localities as far north as Newburgh, N. Y., if not beyond.

The beetles are oblong-oval, about a quarter of an inch long; grayish-yellow, with three small black spots on the thorax, a broad black stripe on the outer edge of the wing covers, and a small oblong spot near their base. The larvæ are thick, cylindrical, six-footed grubs, which feed upon the under surface of the leaves, eating out the green pulp, and leaving the hard veins as a complete



ELM LEAF AND LARVÆ OF ELM BEETLE.

frame-work. The engraving shows an eaten elm leaf, and two "worms," natural size, and an enlarged larva of the beetle on the right of the cut.

As to its destruction, the Elm Leaf Beetle has not received that attention that its importance demands. No better remedy has been suggested than showering the foliage with a very dilute mixture of Paris Green or London Purple in water. A tablespoonful of either poison in a barrel of water, would probably be sufficient, if the mixture is kept well stirred to insure a thorough diffusion of the heavy poison. Pyrethrum invariably kills them.

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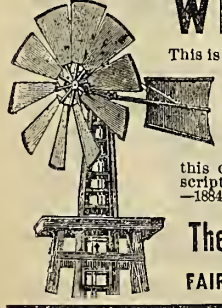


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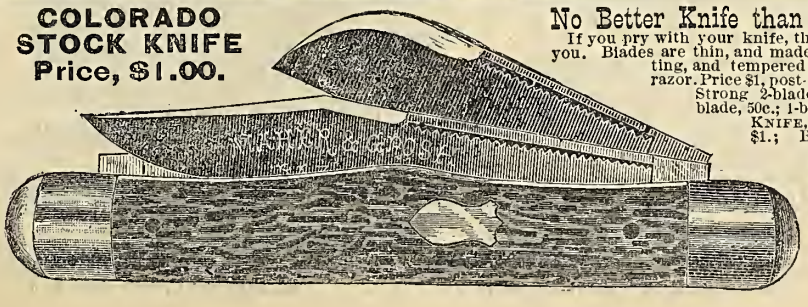
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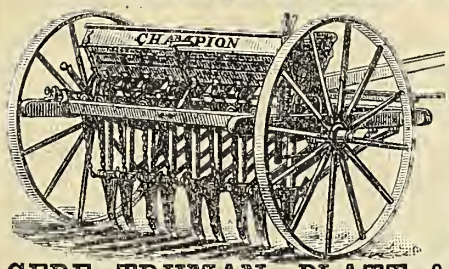
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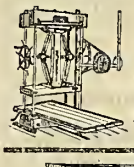
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Mesmerism Did It!

If a signature is wanted by a swindler, he bas only to Mesmerize his victim, and down goes bis name; swindler takes bis note, sells it, and all is easy. Several parties in tbe interior of New York State, who bought cloth and clocks which they did not want, giving notes in payment therefor, now claim that they were Mesmerized when they did it. One old lady says she "was hewitched into doing it," which we take it amounts to ahont tbe same thing. If this Mesmer dodge becomes popular, we shall he obliged to hang out our old warning.

"The Standard Jewelry Company."

A Postmaster in Fulton County, Ill., writes ns that several parties in his vicinity have sent money to the "Standard Jewelry Company," in New York City. That the money reached its destination is shown by the return registry cards, bnt no jewelry, "Standard," or other, bas been received in return. This "Company" is said to be composed of former clerks of the notorious Tiffany & Co. It will be recollected tbat the business of that concern was so large they could not possibly fill the orders, and they sold out. The purchaser found he had made such a had hargain, tbat be got rid of tbe business hy making an assignment.

"Cash Paid for Stories, Sketches, Etc."

Is the purport of an advertisement that appeared in Eastern magazines and journals of good standing, from a party in a Western city. A young lady, in Plymouth Co., Mass., forwarded her Mss. In a few days a letter came from the advertiser, very elaborately stating, that the Mss. "is really very good, only it needs a little revision," to make it acceptable to the hard-to-suit editor. Ten dollars is mentioned as the price asked for the revision, but a buyer stands ready to take it at sixty dollars as soon as revised, who will not take it at any price unless it has been, etc., etc. Young writer sends ten dollars. Neither Mss. or money are heard of again. The advertiser sets his trap for another victim. It does not appear to occur to either party, that a very simple way would be to touch np the story, get the sixty dollars, and forward the author fifty dollars. The advertiser would not he quite so sure of his ten dollars, if matters took that course. Writers should avoid this "Cash Paid for" chap.

Policy Playing on a Large Scale.

Policy playing, or "Poke-a-Moke," is regarded as the meanest of all forms of gamhling. It has great attractions for tbe ignorant, who are influenced in their investments hy their dreams, or by numbers they may chance to see on carts and elsewhere in tbe streets. Persons of this class are not likely to have mucb money, and Policy allows them to gamble with dimes and half dimes—in fact as low as a single cent. These small sums are staked upon certain numbers, or combinations of nnmbers, and tbe result is claimed to be decided hy tbe numbers drawn in tbe Kentucky or other lottery. Of late, it is said that the drawing which decides the fate of the players, is only a pretence. There is now an imitation of tbe Policy game in

"THE LITTLE HAVANA LOTTERY."

The tickets in this bave numbers corresponding to those on the tickets of the Royal Havana Lottery of Cuha, bnt the prizes being smaller, the tickets cost less tban those of tbe original affair. The drawings of the "Royal," wbich it is claimed are received twice a week from Cuba by steamer, determine the drawings of tbe "Little Havana." This appears to differ from Policy only in the amount required to play it; tickets and halves heing two dollars and one dollar. A concern in Indianapolis is sending the circulars of this "Little Havana" gamhling seheme all over the Western States. It is really more pernicious than tbe "Royal Havana" itself, as it tempts young people hy the low price of its tickets. A parent in Ohio writes ns that tbe circulars of tbe "Little Havana" were scnt to his son of seventeen. The headquarters of the concern are in New York City, and the correspondent requests us to investigate "Shipsey & Co., General Agents." Tbese people know altogether too much to be found in when wanted. They can he reached by correspondence, hut no one as yet has succeeded in reaching them in person. Arrests bave been made at the place, bnt tbe parties always proved that they were somebody else.

Paying for Advertising in Ponies.

To judge from the number of his letters to country editors, that are sent to us, VanRauh can not be succeeding very well in his pony dicker. He writes to the country editor:—"I desire to introdnce the sale of my fancy ponies and horses in your locality. I have no money to invest in advertising, but if you will insert the enclosed advertisement six months in a good position in your paper, and eall attention to it editorially, I will ship you, free of freight, one or a pair [what's a pony or two more or less?] of beautiful ponies for your wife or little folks, in the first car-load lot that goes near your place. If acceptable, insert, send copy of paper for six months, and write what kind of ponies you desire.

(Signed) B. H. VanRaub.

A very money-saving proposition is the above. The advertisement would cost from five to eight dollars in in the average country paper, while the freight on the ponies would be ahout twenty-five dollars. One Vermont editor writes us that in spite of the transpareney of the fraud, "a good many editors have swallowed the bait." VanRauh is on the safe side, as the "first car-load lot" is not likely to be soon seen rushing around in the valleys of the Green Mountains. What a pathetic picture could be made of the editors who have published the advertisement, waiting and watching for the "first car-load lot!"

A VICTIM TO A SMALL EXTENT.

LANCASTER, OHIO, July 29, 1884.

American Agriculturist:

MY DEAR SIR: As yon are exposing the fraud Byron Van Raub, I hand you my transactions with him. He got a dollar out of me, but that was all. He was quite profuse in "thanks," hut I never bought any of his fine (?) ponies. Give it to him. Your columns devoted to Humhugs interest me very much.

Yours, very truly,

WM. L. MARTIN.

Preserving Eggs—The Havana Method.

BLEDSOE Co., Tenn., Jnly 30, 1884.

To the *American Agriculturist.*

Gentlemen: Last mail brought me the enclosed circular. Cannot tell how he got my address. When I read it, I noticed that J. W. Spencer made it quite plain where his address is. Mr. Rohinson is a moving planet, and of course can not be found. The others all at letter carrier offices, and no street or number. I remarked that it looked like a fraud on the face of it. My daughter asked what it was. I said the Havana metbod for preserving eggs. Why, she said, the last *Agriculturist* says that it is a fraud. We looked and found it so; hut do as you please ahout it.

Yours truly, LEWIS BOYNTON.

Tbe recipe for preserving eggs hy the "Havana method," was originally offered for one dollar in the remarkahle "Poultry Adviser" puhlished in Ohio. Since then others have offered to send tbe recipe for the same price, the latest heing from Branch County, Mich. That eggs may he preserved hy tbe "Havana recipe," we do not doubt, as it is not essentially different from the lime and salt pickle we bave puhlished without any price for these many years. The important portion of the Havana mixture is lime and salt; to this are added several other articles in small qnantities, and of a kind that neutralize one another. For example, Cream of Tartar (Bitartrate of Potash), and Bicarhonate of Soda, are nsed in the liqnid. Tbe merest smatterer of chemistry knows that these, when put together, result in Tartrate of Soda, and (neutral) Tartrate of Potash, neither of which is known to have any preservative qualities, and if they had, they are present in quantities too small to have any effect. We regard it as a fraud to sell a recipe, different only from one in general use by the addition of ingredients which do not essentially alter or improve it. Farmers and others should stick to the old lime and salt method until some better substitute is offered than tbis so-called "Havana Metbod."

Farmers Look out for "Drouth-Proof Grass."

One J. W. Walker, Franklin County, N. C., wrote to a St. Louis paper an account of "a valuahle perennial grass, valuable for hay, for grazing, and its roots furnishing a beautiful supply of excellent hog food." We are told that "its roots are white, tender, from the size of a goose-quill to that of one's finger, go down three to twelve feet deep after moisture, and yield over one thousand bushels of bog-food per acre." This grass is abundant in its roots, and not slack as to its hay. We are told it "may be cut not less than three times a year, making all the way from one to eight tons per acre at a cutting." Twenty-four tons of hay to the acre, is a good deal of hay, but this is a good deal of a country! As we read about the many bushels of roots we thought of the

WONDERFUL "GREEN VALLEY GRASS OF THE WEST INDIES."

But Walker could not conceal his science, and lets it out that his "Drouth-Proof Grass" is *Sorghum Halepense*, and the jig is up. This "Drouth-Proof," with its muchness of roots, is the "Green Valley Grass," only the picture of that had a man reading a newspaper, with his chair tilted up against a stalk of it. It is not necessary to give this grass a new name, and make a talk over it as "Drouth-Proof." It is already well known, and has been cultivated for years in some localities as "Johnson-grass" and "Means-grass." It is valuable for some uses; it has long been profitably cultivated for baling in Georgia, and is now successfully grown in Alahama, for just what it is, and it requires no cock-and-bull stories of twenty-four tons of hay to the acre, with a thousand bushels of hog-feed added for good measure. Mr. Walker is no novice in

THE WONDERFUL PLANT BUSINESS.

Mr. W. A. Garrett, Henry County, Mo., writes us, that in the spring of '82 he saw, in the "South and West" of St. Louis, a communication from said J. W. Walker, describing another wonderful plant, the Japan Clover. Mr. Garrett being interested in Walker's article, wrote him, making some inquiries. Walker sent a price-list, quoting the seed of Japan Clover at five dollars per bushel. Mr. Garrett sent seven dollars for seed. In due time a box came, the express charges on which were seven dollars more. "I opened the box and found that it contained not a seed of any kind, but was full of sand. I wrote to the sender, but never received any reply."

HERE IS A PORTION OF MR. GARRETT'S LETTER,

which we commend to those who ask us to show up this or that as a Humbug, and add: "Do not make use of my name in any manner." Mr. Garrett writes: "As he (Walker) has entered the field again, doubtless with a view to eateh others, as he did me, I deem it my duty to show him up in his true colors, so that I may save some brother farmer from investing fourteen dollars in sand." Observe Mr. Garrett does not say: "I deem it the duty of the *American Agriculturist* to show him up," but "I," and "my," as if he had duties in the matter, besides that of being willing "to sacrifice all of his wife's relations."

Cautionary Signal.

"The Golden Bee Hive."

Professor A. J. Cook, the eminent apiarist of Lansing, Michigan, sounds a shrill note of warning in the Detroit "Daily Post," which should reach bee-keepers everywhere. He writes: "I am told that I nse the 'Golden Bee Hive;' that he (the patentee) has sold hundreds ahont Lansing; that the hive will surely winter bees, etc....I never used said hive; I do not know of one used around Lansing, and the hive so far as I know is not used by a single prominent hee-keeper in the United States." Professor Cook further states, that "any bee-keeper has a perfect right to use all the valuahle features claimed for the 'Golden Hive.' The Langstroth is free to all, and would be preferred hy every hee-keeper of experience to this so-called patented hive." Concerning the wintering of bees, Professor Cook writes: "When the bees are dead next spring, as they surely will he in this hive, if we have a severe winter and his directions are followed, the 'patentee' will he in his southern home, and his warrant will he utterly worthless. He says it secures more honey. This is absurd. Bees gather all they can in any hive, if given room. Every hive of this kind sold in the country is a damage. This man, I am told, has taken four hundred dollars from the farmers around Lapeer, Mich."—It would seem from the words of a leading apiarist, above quoted, that the "Golden Bee Hive" is something for all hee-keepers to let severely alone.

The Campaign Opened.

We give special inducements to all subscribers and friends of the "American Agriculturist," who propose to raise clubs this season, and afford such facilities as will enable them to readily procure subscriptions. Please immediately write us for full particulars, addressing your letter, Subscription Department, American Agriculturist, 751 Broadway, New York.

SEE PAGES 394 and 395 FOR IMPORTANT ANNOUNCEMENTS REGARDING NEW SUBSCRIBERS.

Seasonable Books.

Practical Forestry.—By Andrew S. Fuller: Orange Judd Company, New York. One needs to read the sub-title, in order to form an idea of the full scope and usefulness of the work. That which relates to the propagation of trees by various methods, planting and caring for them until of the most profitable size for their various uses, properly comes under the head of "Practical Forestry." Upon these matters the author has a right to speak as he does from an experience of many years, which was passed through long before Forestry was regarded as an important branch of agriculture. As valuable as this practical portion of the work really is, the author has done the tree planters of the country a greater service in bringing before them, in a compact form, a complete list of all the trees native to the United States. If this has been done before, we have not met with it. Here the planter finds a list of the native materials at hand, and these are described in a brief and popular manner, which allows some opinion to be formed of their value and uses. The work, while it includes all our native trees, does not exclude all foreign species. There are some foreign trees, the value of which in this country has long been fully established, these are of course given place. Besides, there are a number of others, but little tested, which may be useful on our soil. These newer, and probably promising trees, are known to the majority by name merely. Any description or information about them is scattered through volumes not included in ordinary libraries. Mr. Fuller has done well to bring these scattered materials together, and give such information and popular description as each appeared to require. The work will doubtless supply a demand which recent conventions and discussions have created for whatever of real value that relates to Forestry. Price, post-paid, $1.50.

Allen's New American Farm Book.—By R. L. & L. F. Allen: Orange Judd Company, New York. When a young farmer asks, if there is not a book of ready reference to aid him in his farm work; one that will tell him how much seed is required to the acre by the different farm crops; what is the best preparation of the land, etc., in short, a work that will reply to the many questions which he formerly depended upon his father to answer, we know that "Allen's New American Farm Book" is what he wants. A correspondent writes us in effect: "I was brought up on a farm, but have been so many years in mercantile business, that I find I have forgotten many things, and those I do remember are not suited to the present day. Farming is not what it was when I left it. Can you not recommend some work that will aid my recollection, and give me in brief, hints at the present methods of managing farm work?" There is but one work that will meet the wants of the merchant who has returned to the farm—"Allen's New American Farm Book." Some banker, or other city dweller, wealthy enough to have a farm as an amusement, and as a comfortable place for the family in summer, stops at the office, remarking: "Of course I am obliged to leave the management of my place to the farmer. I pay him to do that. Still I do not like to have a man in my employ ask my advice about matters, concerning which I am perfectly ignorant. Have you not a work, in which I can get some idea of what is going on upon my own farm? The other day the farmer remarked, that "the prospect for rowen was pretty good;" and I came very near telling him, if he would attend to the farm, the boys would look after the boating. Now I want some book which gives the meaning of farm words." This man's case, which is typical rather than actual, could be best met by Allen's "Farm Book." The work was originally written by the late R. L. Allen, the first editor of the *American Agriculturist*, who was in his day justly regarded as the most accomplished among our farmers, and who united practical agriculture with scientific acquirements in a manner very rare at that time and not too frequent since. After the author's death, the volume was enlarged from time to time by his brother, L. F. Allen, long a successful farmer in one of the most fertile portions of Western New York. The work as brought down to the present time remains, as it was originally, unique in its character, and one which meets the wants of a large number of farmers. It is rarely we find so much useful information brought within the limits of a single volume. Price, post-paid, $2.50.

The Fruit Garden.—By P. Barry: Orange Judd Company, New York. In its last revision, Mr. Barry's work has attained to greater bulk than ever before, over five hundred pages. This is another instance in which the title fails to give an idea of the full scope and value of the work. In this country, a "Fruit Garden" is regarded as an area devoted to the culture of small fruits. So far from this, this work is a treatise upon all kinds of fruit and fruit trees and shrubs grown in the country, and treated with a directness and thoroughness, rarely equalled. The tree is started from its very beginning, raised in the nursery, planted in the orchard, cared for until it bears, when its fruit is gathered, packed, and shipped to market. Everything is openly and plainly told, and the reader has no feeling that any trade secrets have been kept back. The author believes that the best way is the best, and he gives those methods that have led to success in the most extended and varied nurseries in the country. It is just the work that each one who grows fruit, whether for home use or for market, should have at hand for reference. Those about to commence fruit-growing, will find autumn the best season in which to begin preparations. Price, post-paid, $2.50.

Mrs. Elliott's Housewife.—By Mrs. Sarah A. Elliott: Orange Judd Company, New York. Those who have been much in the Southern States are aware that, in many respects, domestic matters are very different from those in Northern homes. This is especially noticeable in the table, not only in dishes, the raw materials for which are peculiar to the South, but in peculiar methods of cooking articles that are common everywhere. Mrs. Elliott's book does not claim to be exclusively on Southern cooking, but it contains many Southern methods, which are not to be found elsewhere. The Southern house-keeper, being usually far from good markets, gives more attention to salting and smoking meats, than her Northern sister, as well as to preparing pickles and preserves. In these preserving and pickling days, the Northern housekeeper will find in the work methods of preparing various peculiarly Southern compounds in these lines. The useful hints upon various points in household management, add to the value of the book. Price, post-paid, $1.25.

The Grape-Growers Guide.—By William Chorlton: Orange Judd Company, New York. If persons of means, or of sufficient leisure, were aware how readily large clusters of delicious exotic grapes could be grown in a cold grapery, such grape houses would be more frequent than they now are. We can raise such excellent grapes in the open air, that there is less inducement here to build glass houses than in England. There it is grapes under glass, or no grapes at all. Those who would add to their luxuries by growing exotic grapes, will find Mr. Chorlton's work what its title claims it to be—a guide. Not only is it a guide in growing and fruiting the vines, but in the construction of the house also. Its directions are those of one whose long and successful experience enables him to teach others, and to guide the novice in every detail. Those who propose to erect grape houses, whether cold graperies or those to be heated, will find autumn the most favorable time for the work. Price, post-paid, 75 cents.

American Grape-Growing and Wine Making.—With added chapters on the Grape Industries of California, by George Husmann: Orange Judd Company, New York. In this work the author gives his own large experience, and the methods of others, in cultivating grapes on a large scale. If one has but a few vines, a little more or less time expended upon them, is of no great consequence. In vineyard culture, where vines are to be dealt with by hundreds and thousands, it is necessary to treat them with a view to saving time. The method of training here proposed is that which will produce the best present crops, and also secure the future productiveness of the vines. The instructions for wine making are full and plain, and if intelligently followed cannot fail to produce good results, whether upon a large or a small scale. Those who contemplate undertaking grape culture in a wholesale way, should recollect the importance of making their preparations in the fall; at this time the land should be plowed, even if it is not expedient to plant it. Sent post-paid, $1.50.

French's Farm Drainage.—By Henry F. French: Orange Judd Company, New York. Judge French, of New Hampshire, was in this country one of the pioneers who "buried crockery" with most excellent results upon his lands and crops. He was certainly the pioneer author, and his practical work upon Farm Drainage, in its way, contributed largely to the improvement of our agriculture. While the work is especially devoted to tile draining, which in the end has proved less costly than any substitutes or make-shifts, yet there are at times cases where it is expedient to make use of drains of wood, of stones, of brush, and even of open ditches. It is well to know where these substitutes for tiles are advisable, and how to construct them in the most effective manner. Over a large portion of our country, autumn is the most favorable season for draining. The soil retains a genial warmth, and the work may often be continued far into the winter. Price, post-paid, $1.50.

How to Hunt and Trap, by J. H. Batty: Orange Judd Company, New York. The value of this work consists in its being the record of personal experience, and in its attention to the small matters upon which success, especially in trapping, so much depends. It is too often the case, that those who write works assume that the reader knows about the apparently trivial matters, and omit the very things which the novice wishes to know. All Mr. Batty's directions show that he has been able in writing for the novice to "put yourself in his place," and anticipate the difficulties he may meet with. Abundantly illustrated. Price, post-paid, $1.50.

The Cattle Disease at the West.

While the accounts by telegraph and by mail agree that a fatal disease has appeared among cattle in Kansas and Nebraska, they differ as to its nature. Some assert that the dreaded and fatal Texas fever is among the herds in transit, others claim that the mortality is due to bad water; that good water has been very scarce along the route, and the animals have been obliged to drink water so highly impregnated with alkaline compounds, as to prove fatal to many that drank it. The arrival at the Chicago stock yards of several car-loads of sick and dying animals, naturally caused alarm, for fear that the disease would spread eastward. The prompt measures taken at Chicago and other points, resulted in the isolation of the animals that had been exposed to the disease, and the shooting and condemning of the carcasses of those hopelessly sick. It is claimed by good authorities, that the Texas fever can not be communicated by mere contact of the sick with the well, but only when well animals graze after or feed after those having the fever. It is asserted that, should it prove to be the Texas fever, there is no cause for alarm, as the disease prevails to no greater extent than it has for a number of years at this season. A still greater assurance is afforded by the action of the leading cattle men, those at the head of the largest Cattle Live Stock Associations and Cattle Companies at the West, and the railroads. These have agreed to move no more Texan Cattle until after the frost, which removes all danger. The prompt action of the Governors and the official veterinarians in the States most interested, should allay all fears that the dismay spread eastward.

Something New in Ramie Culture.

Many of our readers will recollect with what hopes the cultivation of the Ramie, or China Grass Plant, was undertaken some twenty years ago. In the cotton States especially, where planters were ready for some crop that required less labor than cotton, quite large experimental fields were planted. These attempts showed, that there was no difficulty in producing the raw material. But the culture did not extend, and was soon practically abandoned. The plant contains a fine, strong, and beautiful fibre, more like silk than any other; but to free it from the bark and all extraneous matter, by the slow hand process of the Orientals, was not to be thought of. Machines were invented, and those who undertook to grow the fibre, in the hope that these would prepare it for market, were disappointed. The separation of Ramie fibre by machinery failed, and its production ceased. It appears that the matters surrounding the fibres and attaching them to one another, are of a nature that does not allow of their complete separation by machinery alone, but there must be a solvent which will dissolve these, and allow of the separation of the ultimate fibres.

A NEW PROCESS

has just been discovered and patented, which promises to make Ramie culture practicable, as it removes the obstacle which has so long stood in the way of the industry. The bark is stripped from the stems of the Ramie while they are green. It is then passed through a simple machine, which removes the coarser portions of extraneous matter; the operation is completed by boiling for a short time in a solution of chemicals, which dissolves out all the gum and other materials. After the Ramie is washed, it has a slightly yellowish color, but the ultimate fibres are all distinct, and shine with a peculiar lustre. A final bleaching gives the Ramie a brilliant whiteness, and it appears like silk. In order to encourage the growing of Ramie, the company owning the process, offer to purchase the crude bark, merely stripped from the stems, at a stated price, thus removing one of the obstacles to its culture—the lack of a market.

Much is yet to be settled with regard to the plant as a crop. Its Northern limit is not yet well defined. The plant is a perennial, but it will not bear severe freezing; it will probably succeed in New Jersey, though there the roots may need a covering of litter during the winter. Further South, three and sometimes four cuttings can be made during the season. The plant may be raised from the seed; the seedlings, when large enough, being transplanted to the field. It is much more expeditious to plant pieces of the old plants; these, if planted in autumn will become established and be ready to yield a crop next year. We look with much interest upon this new departure in the treatment of Ramie, as possibly adding another to the crops of our varied agriculture, and with sincere wishes for its success.

War in an Apple Barrel.—Just as we are closing the last pages of this issue, we learn that the fruit dealers in Niagara and Orleans Counties, N. Y., have issued a circular to the apple growers, as follows:—

"We desire to state that on and after the first day of October next, we will not buy fruit in barrels of any less size than the present flour barrel, which is made of staves twenty-eight and one-half inches long, with a seventeen-inch head, and a bilge of sixty-four inches in circumference—and our reasons for such a course are as follows: For the past few years, we have, in common with the whole trade, suffered severe loss not only through poorly packed apples, but inferior and very small barrels, which wholly puts our fruit outside of the export trade. It costs no more to transport a full-sized barrel by railroad, canal, or ocean steamer, than a small one, which fact enables the buyer to pay a greater price for fruit packed in full-sized packages."—The dealers, of course, have a right to buy or not to buy, as they please. And the farmers have a right to use the present legal apple barrels, holding one hundred quarts, if they think best. To accuse the farmers and fruit growers of Western New York of "stinginess," because they use the legal barrel, is entirely uncalled for. The dealers have been hasty in their action. They over-estimate their power if they think they can dictate terms to the farmers. So far as we have heard, however, the farmers and fruit growers have not the slightest objection to using the flour barrel size. Why should they have? The only question is whether the dealers will or will not pay an increased price for an increased barrel of good fruit.

The Hydraulic Ram or Water Ram.—This is an apparatus whereby at little expense a constant stream of water from a brook, spring, or pond can be made automatically to pump a small portion of the water to any desired hight, within one hundred to one hundred and fifty feet. The essentials are a supply that will fill say an inch pipe, and a fall of five to eight feet, within a short distance. Any first-class agricultural implement or pump house will send circulars with full explanations, giving prices for rams of different sizes, piping, etc.



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Professor J. M. Heard, M.D., of New York City, Member Royal College of Veterinary Surgeons of England, Graduate of the London Veterinary College, Professor of Clinical Surgery and Surgical Pathology of the Horse in the N. Y. College Veterinary Surgeons, etc., etc., says: "I take great pleasure in bearing testimony to the valuable properties possessed by the Arnicated Extract of Witch Hazel as prepared by you (the Liebig Co.) No Veterinary Surgeon or horse owner can afford to be without it."

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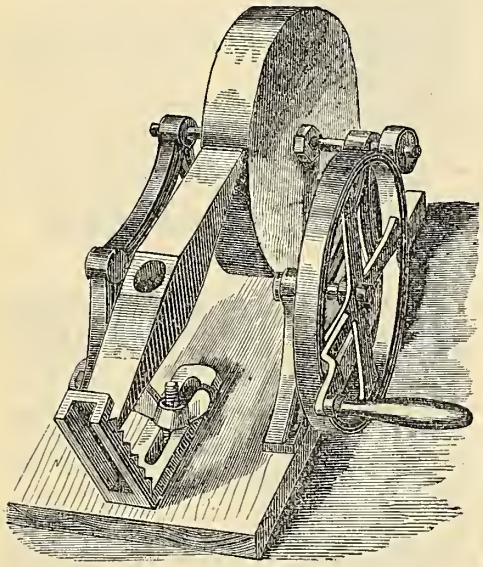
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The Area and Population of each of the United States and Territories at each Census from 1790 to 1880.

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Public Land System of the United States.

About Free Homesteads on the Public Lands.

Each year's Prices, for 53 years, of Wheat, Flour, Corn, Cotton, Beef, Hams, Butter, Sugar, Coffee, Bar and Pig Iron, and Coal.

History of American Petroleum.

Tables for reckoning Interest at 4, 5, 6, 7, 8, and 10 per cent, from one day to one year, from $1 to $1,000.

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4th.—What is the price of improved land?
5th.—What is the price of wild land, if any?
6th. Is there any railroad near you, and if so, how near?
7th. The population of your County
8th. The characeter of the population.
9th. Is there any foreign population, and if so, from what countries mainly?
10th. Are there any churcbes in your neighborhood, and if so, what churehes?
11th. Are tbere any schools in your vicinity?
12th. What is the cost of lumber in your neighborhood?
13th. Can purchasers buy land on time, and if so, how much time is given?
14th. Are there any railroad lands in your vicinity, and if so, on what conditions are they sold?

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The Grand Extra Edition

of the *American Agriculturist* for all persons who, though not now subscribers of the *American Agriculturist*, have been subscribers within the past ten years, will be ready in a few days' time. It will be mailed free. Any old subscribers whose post office addresses have changed, will please notify us of the fact, as many are now doing.

Furthermore, to the end that all ex-subscribers may get this Grand Double Number, will every present subseriber pleasc immediately send us on a postal card, the names of every friend and neighbor who, though not now, has sometime been a subscriber of the *American Agriculturist*.

Pleasant Announcement.

Mr. Joseph R. Folsom, until this month a member of the firm of G. P. Putnam's Sons, will hereafter be associated with the Publishers of the *American Agriculturist*, in advancing the interests of that journal, and more especially in enlarging the number, and pushing tbe sales of our already large list of publications. For eleven years Mr. Folsom has been trained in the old and highly esteemed Publishing House of Putnam, and during the past six years of that period has been a member of the firm. He is a graduate of the Sheffield Scientific School of Yale College, and by travel, study, and business experience, is peculiarly fitted for this field of labor, whose limits we are now materially extending.

Missing Numbers.

Never before was the *American Agriculturist*, printed so regularly, mailed so promptly, and delivered so satisfaetorially as now. Thanks to the kind aid of Postmasters and other friends, mailing irregularities resulting from treachery to tbis establishment which will be fully exposed at the proper time and place, have been adjusted, and now —what before was unknown—there are no complaints to speak of in connection with our extensive Mailing Department. We propose to have this state of affairs continue, and to that end we will thank every subscriber to immediately notify us if his *American Agriculturist* does not reach bim as regularly as clock work.

Editors, Club-Raisers, Canvassers, and Subscribers, will oblige us by continuing to forward documents and letters, indicating that any subscription lists, or lists of club-raisers belonging to this Establishment, may have surreptitiously been made. The Postal Album scheme has been pretty thoroughly ventilated all over the country, and we shall thank all our friends to aid us in exposing any similar fresh scheme for either securing the subscribers of this journal or impairing the good will of this Company. Tbe very fact that letters are marked "Private," should not, when the purpose is so clearly transparent, deter the receiver from forwarding them to us if they are kindly disposed to do so in the future.

Features of this Number.

The August *American Agriculturist* was universally pronounced the ablest and most attractive number ever issued. We confidently believe, however, that the present (September) issue will be regarded by readers as superior even to the August number. It embraces over 100 columns of original, illustrated reading matter, and over two hundred different editorials, prize papers, and plain, practical, common sense articles, and topics pertaining to the Farm, Garden, and Household, written expressly for this journal by over 40 different writers. The New Elm Tree Pest; The New Swine Poisoner; The New Early Cherry; The New Narcissus; The New Destroyer of the Cabbage Worm; The New Method of Blanching Celery; A Little Known Grass; together with all other new topics are fully treated and illustrated. Joseph Harris gives a world of information in his "Walks and Talks," and discusses the Apple Barrel War. Dr. George Thurber writes with more than his accustomed interest on a variety of matters, particularly interesting to the horticultural world. Col. Mason C. Weld narrates at length the results of his experiments in testing famous butter cows. Andrew S. Fuller discourses upon the Influence and Effects of Pollen. Professor Thompson, of Nebraska, tells how to most advantageously raise cattle in the West. Elias A. Long presents full instructions for making handsome lawns. Henry A. Haigh gives valuable suggestions in making farm contracts. Professor Slade, of Harvard University, tells how to successfully treat Animal Ailments. Col. F. D. Curtis speaks of Weaning and Feeding Young Pigs. R. G. Newton, Dak., turns the Farmer's Grindstone. Alfred Trumbull analyzes the Harvest of the Sea. Timothy Bunker descants upon the "yaller dorg" in his usual facetious vein. Dr. Byron D. Halsted points out the value of buckwheat as a farm crop. David W. Judd, who has been making his accustomed annual tour through the Far West describes what he saw and heard. The illustrations and engravings, by leading artists, number over a hundred—of the full page illustrations, the one representing a Gathering Storm is most vivid and life-like.

Apply at Headquarters.

A Western newspaper asks the public to forward any information about its editor which the public may have. If it will apply at this office, 751 Broadway, N. Y., the paper in question can procure all the information it may require, documentary and otherwise, either with or without "original envelopes."

STATE, COUNTY, AND OTHER FAIRS IN 1884.

STATE, PROVINCIAL, etc.

American Institute,	New York	Sept. 24-
California	Sacramento	Sept. 8-20
Canada Dominion	Ottawa	Sept. 22-27
Canada Central	Hamilton	Sept. 30-Oct. 3
Canada Fat Stock	Guelph	Dec. 15-20
Canada Western	London	Sept. 22-27
Cincinnati Indns'l	Cincinnati	Sept. 3-Oct. 4
Colorado	Denver	Sept. 1-30
Connecticut	Meriden	Sept. 16-19
Delaware	Dover	Sept. 29-Oct. 4
Fat Stock	Kansas City, Mo.	Oct. 30-Nov. 6
Georgia	Macon	Oct. 27-Nov. 1
Illinois	Chicago	Sept. 8-13
Illinois Fat Stock	Chicago	Nov. 11-19
Indiana	Indianapolis	Sep. 29-Oct. 4
Indiana and Mich.	South Bend, Ind	Sept. 22-26
Iowa	Des Moines	Aug. 29-Sept. 5
Kansas	Lawrence	Sept. 1- 6
Kansas	Topeka	Sept. 8-13
Kentucky	Lexington	Aug. 26-30
Lonisville	Louisville	Aug. 16 Oct. 25
Maine	Lewiston	Sept. 23-26
Maryland	Hagerstown	Oct. 21-24
Mass. Hort'l Soc'y	Boston	Sept. 16-19
Michigan	Kalamazoo	Sept. 15-19
Minnesota	Owatonna	Sept. 8-13
Minnesota Indus'l	Minneapolis	Sept. 1- 6
Mississippi	Jackson	Oct. 20-25
Miss. S'k Breeders	Meridian	Oct. 27-Nov. 1
Montana	Helena	Sept. 8-13
Nebraska	Omaha	Sept. 5-12
New England	Manches'r, N.H.	Sept. 1- 5
New Jersey	Waverly	Sept. 15-19
New Orleans Ind'l	New Orleans	Dec. 1-May 31
New York	Elmira	Sept. 4-10
North Carolina	Raleigh	Oct. 1-28
Ohio	Columbus	Sept. 1- 6
Ohio Central	Mechanicsburg	Sept. 5-12
Ohio Southern	Dayton	Sept. 25-Oct. 3
Oregon	Salem	Sept. 15-20
Pennsylvania	Philadelphia	Sept. 8-20
Quebec Provincial	Montreal	Aug. 29-Sept. 6
Rhode Island	Providence	Sept. 22-26
St. Louis	St. Louis	Oct. 6-11
South Carolina	Columbia	Nov. 11-14
Tennessee	Nashville	Sept. 16-20
Texas	Austin	Oct. 7-11
Toronto Indns't'l	Toronto	Sept. 10-20
Tri-State	Toledo, O	Sept. 8-13
Vermont	Burlington	Sept. 8-13
Virginia	Richmond	Oct. 22-24
Western N. Y.	Rochester	Sept. 16-19
West Virginia	Wheeling	Sept. 8-13
W. Virginia Cent'l	Clarksburg	Sept. 16-19
Wisconsin	Madison	Sept. 15-17
Wisconsin Ex	Milwaukee	Sept. 18-Oct. 18
Wisconsin North	Oshkosh	Sept. 8-12

COUNTY FAIRS.

CONNECTICUT.

Chester	Chester	Oct. 2
Clinton	Clinton	Oct. 2
Danbury	Danbury	Oct. 6-11
Fairfield	Norwalk	Sept. 29-Oct. 3
Farmington Val'y.	Collinsville	Sept. 30-Oct. 1
Gmilford	Guilford	Oct. 1
Killingworth	Killingworth	Sept. 24
Millford & Orange	Milford	Sept. 9-11
New London	Norwich	Sept. 23-25
Simsbury	Simsbury	Oct. 8- 9
Stafford	Stafford Springs	Oct. 8-10
Suffield	Suffield	Oct. 1- 2
Tolland	Rockville	Oct. 14-15
Union, Monroe & C	Hnntington	Sept. 17-19
Westbrook	Westbrook	Oct. 8
Willimantic	Willimantic	Sept. 30-Oct. 2
Windham	Brooklyn	Sept. 23-25
Woodbridge & Bethany	Woodbridge	Oct. 1- 2
Woodstock	Woodstock	Sept. 16-18

ILLINOIS.

Adams	Camp Point	Sept. 1- 5
Adams	Qnincy	Aug. 18-21
Boone	Belvidere	Sept. 2- 5
Brown	Mt. Sterling	Aug. 26-29
Bureau	Princeton	Sept. 16-19
Carroll	Mt. Carroll	Sept. 2- 5
Cass	Virginia	Aug. 19-22
Champaign	Champaign	Aug. 26-29
Coles	Charleston	Sept. 9-13
Crawford	Robinson	Sep. 30-Oct. 3
Cnmberland	Toledo	Sept. 17-20
DeKalb	Sycamore	Sept. 16-19
DeWitt	Clinton	Aug. 10-22
DeWitt	Farmer City	Sept. 2- 5
Douglas	Tuscola	Sept. 2- 5
DuPage	Wheaton	Sept. 3- 5
Edgar	Paris	Sept. 2- 6
Edwards	Albion	Sept. 23-26
Effingham	Effingham	Sep. 30-Oct. 3
Fayette	Vandalia	Sept. 24-27
Ford	Piper City	Oct. 1- 3
Franklin	Benton	Oct. 14-17
Fulton	Avon	Sept. 23-26
Gallatin	Shawneetown	Aug. 26-29
Greene	Carrollton	Sept. 30-Oct. 3
Hamilton	McLeansboro	Sept. 16-20
Hancock	Carthage	Sept. 8-12
Hancock	Warsaw	Aug. 26-29
Hardin	Elizabethtown	Sept. 24-27
Henderson	Biggsville	Sept. 9-12
Henry	Cambridge	Sept. 1- 5
Iroquois	Watseka	Sept. 9 12
Jackson	Mnrphysboro	Sep. 30-Oct. 3
Jackson	Carbondale	Oct. 14-17
Jasper	Newton	Sept. 16-19
Jefferson	Mt. Vernon	Oct. 14-17
Jersey	Jerseyville	Oct. 14-17
Jo Daviess	Galena	Sep. 30-Oct. 3
Jo Daviess	Warren	Sept. 16-19
Kankakee	Kankakee	Sept. 2- 5
Kendall	Yorkville	Sept. 2- 5
Knox	Knoxville	Sept. 1- 5
Lake	Waukegan	Sep. 29-Oct. 4
Lake	Libertyville	Sept. 17-20
La Salle	Mendota	Sept. 1- 6
Livingston	Fairbnry	Sept. 15-19
Logan	Lincoln	Aug. 25-29
Logan	Atlanta	Sept. 2- 5
Macoupin	Carlinville	Sep. 30-Oct. 3
Marion	Salem	Oct. 28-31
Marion	Centralia	Oct. 20-25
Marshall	Wenona	Sep. 29-Oct. 3
Mason	Havana	Sep. 30-Oct. 3
Massac	Metropolis	Oct. 8-11
McDonongh	Macomb	Aug. 25-29
McDonough	Bushnell	Sep. 29-Oct. 3
McHenry	Woodstock	Sept. 2- 5
McHenry	Marengo	Sept. 16-19
McLean	Bloomington	Sept. 8-12
Montgomery	Hillsboro	Sept. 23-26
Morgan	Jacksonville	Aug. 25-29
Moultrie	Sullivan	Sept. 9-12
Ogle	Oregon	Sept. 16-19
Ogle	Rochelle	Sept. 23-26
Peoria	Peoria	Sept. 15-20
Perry	Pinckneyville	Oct. 7-10
Piatt	Monticello	Aug. 18-22
Pike	Pittsfield	Sept. 23-26
Pope	Golconda	Oct. 1- 4
Randolph	Sparta	Oct. 15-17
Richland	Olney	Sept. 9-12
Rock Island	Port Byron	Sept. 9-12
Saline	Harrisburg	Sept. 2- 5
Saline	Eldorado	Sept. 23-27
Sangamon	Springfield	Sept. 1- 6
Schuyler	Rushville	Aug. 19-22
Shelby	Shelbyville	Sept. 16-20
Stark	Toulon	Sept. 23-26
Stark	Wyouing	Sept. 2- 5
St. Clair	Belleville	Sept. 16-19
Tazewell	Delavan	Sept. 15-19
Tazewell	Mackinaw	Aug. 26-29
Union	Anna	Aug. 26-29
Union	Jonesboro	Sept. 16-19
Vermilion	Catlin	Aug. 26-29
Vermilion	Hoopeston	Aug. 26-29
Vermilion	Danville	Sept. 23-26
Warren	Monmontb	Sept. 2- 5
White	Carmi	Sept. 2- 6
Whiteside	Sterling	Aug. 26-29
Whiteside	Morrison	Sept. 2- 5
Williamson	Marion	Sept. 9-12
Winnebago	Rockford	Sept. 1 -5
Woodford	El Paso	Sept. 22-27

INDIANA.

Allen	Ft. Wayne	Sep. 30-Oct. 3
Bartholomew	Columbus	Sept. 15-20
Blackford	Hartford City	Sept. 16 19
Boone	Lebanon	Aug. 18-22
Cass	Logansport	Sept. 23-27
Clark	Charleston	Sept. 9-1.
Clay	Brazil	Sept. 1- 6
Clinton	Frankfort	Aug. 2 -29
Dearborn	Lawrenceburgh	Aug. 19-23
Decatur	Greensburg	Aug. 25 30
Delaware	Muncie	Aug. 12-15
Elkhart	Gosben	Oct. 7-10
Fulton	Rochester	Sept. 23-26
Gibson	Princeton	Sept. 15-20
Grant	Marion	Sept. 16-10
Greene	Linton	Oct. 6-10
Hamilton	Noblesville	Aug. 25-29
Harrison	Corydon	Sept. 1- 5
Henry	New Castle	Sept. 16-20
Howard	Kokomo	Aug. 26-30
Huntington	Huntington	Sept. 15-19
Jackson	Brownstown	July 29-Aug. 1
Jay	Portland	Sep. 30-Oct. 3
Jefferson	Madison	Sept. 2- 5
Jennings	North Vernon	Aug. 5- 8
Knox	Vincennes	Oct. 13-18
Kosciusko	Warsaw	Sept. 23-26
Lake	Crown Point	Sept. 9-12
La Porte	La Porte	Sept. 23-26
Lawrence	Bedford	Oct. 1- 4
Madison	Anderson	Sept. 1- 5
Marshall	Plymouth	Oct. 8-11
Miami	Peru	Sept. 16-20
Montgomery	Crawfordsvill	Sept. 8-13
Newton	Moroeco	Sept. 2- 5
Noble	Ligonier	Sep. 30-Oct. 3
Orange	Paoli	Aug. 26-30
Parke	Rockville	Aug. 18-23
Perry	Rome	Oct. 6-10
Pike	Petersburg	Sept. 1- 5
Porter	Valparaiso	Sept. 16-19
Posey	New Harmony	Sept. 9-13
Pulaski	Winamac	Sept 23-26
Randolph	Winchester	Sept. 2- 5
Ripley	Osgood	Aug. 12-15
Rush	Rushville	Sept. 9-12
Shelby	Shelbyville	Sept. 2- 6
Stenben	Angola	Oct. 6-10
St. Joseph	Sonth Bend	Oct. 22-26
Tipton	Tipton	Sept. 16-19
Vigo	Terre Haute	Sept. 8-13
Wabash	Wabash	Sept. 9-12
Warren	North Lebanon	Sept. 9-13
Warrick	Booncville	Sept. 23-27
Washington	Salem	Sept. 8 12
Whitley	Colnmbia City	Sept. 24-27

INDIANA DISTRICT.

Acton District Ass.	Acton	Sept. 22-26
Bridgeton Union	Bridgeton	Aug. 25-30
Cambridge City	Cambr'ge City	Sept. 2- 6
Dunkirk Union	Dunkirk	Aug. 19-24
Eastern Ind. Ag'l	Kendallville	Oct. 6-10
Edinburg Union	Edinburg	Aug. 26-30
Fairmount Union	Fairmount	Sept. 9-12
Fonntain, Warren and Vermilion	Covington	Sept. 16-19
Francesville Ag'l	Francesville	Sep. 30-Oct. 4
Henry, Madison	Middletown	Aug. 19-22
Knightstown Un'n	Knightstown	Aug. 26-29
Lawrence District	Lawrence	Sept. 16-20
Loogootee Ag'l	Loogootee	Aug. 19-23
Miami & Fulton	Macy	Oct. 1- 4
New Ross Union	New Ross	Aug. 11-15
Northwestern Ind	Waterloo	Sept. 22-26
Orleans Ag'l	Orleans	Sept. 3- 6
Plainfield Hort. & Agricn'l	Plainfield	Sept. 3- 5
Southeastern Ind.	Aurora	Aug. 5- 9
Switzerland & Ohio	East Enterprise	Sept. 9-12
Union Ag'l & Mech.	Union City	Sept. 15-19
Wayne & Randolph	Dalton	Aug. 26-29
Wells & Blackford	Five Points	Sept. 30-Oct. 3
Xenia Dist. Union	Xenia	Sept. 2- 6

IOWA.

Appanoose	Centerville	Sept. 11-13
Benton	Vinton	Sept. 17-19
Boone	Ogden	Sept. 10-13
Bremer	Waverly	Sept. 16-19
Buchanan	Independence	Aug. 26-29
Cass	Atlantic	Sept. 23-26
Cerro Gordo	Mason City	Sept. 9-11
Chickasaw	New Hampton	Sept. 10-12
Clarke	Osceola	Sept. 9-12
Clayton	National	Sept. 9-11
Clinton	De Witt	Sept. 16-19
Crawford	Denison	Sept. 9-12
Council Bluffs	Council Bluffs	Aug. 25-29
Davis	Bloomfield	Sept. 18-20
Decatur	Leon	Sept. 16-19
Delaware	Manchester	Sept. 16-19
Des Moines	Burlington	Sept. 15-19
Fayette	West Union	Sept. 16-19
Floyd	Charles City	Sept. 10-12
Franklin	Hampton	Sept. 9-11
Greene	Jefferson	Aug. 27-29
Grundy	Grundy Centre	Sept. 3- 5
Gnthrie	Menlo	Sept. 16-18
Hardin	Eldora	Sept. 9-12
Harrison	Missouri Valley	Sept. 30-Oct. 2
Henry	Mt. Pleasant	Sept. 9-12
Howard	Creseo	Sept. 16-19
Iowa	Marengo	Sept. 9-11
Inter-State	Hamburg	Sept. 15-19
Jasper	Newton	Sept. 16-19
Jefferson	Fairfield	Sept. 9-11
Johnson	Iowa City	Sept. 16-19
Keokuk	What Cheer	Sept. 9-12
Kossnth	Algona	Sept. 24-26
Lonisa	Wapello	Sept. 9-12
Lucas	Chariton	Sept. 9-12
Mahaska	Oskaloosa	Aug. 25-29
Marion	Knoxville	Aug. 18-22
Marshall	Marshalltown	Aug. 26-29
Mills	Glenwood	Sept. 10-12
Mitchell	Osage	Sept. 10-12
Monona	Onawa	Sept. 24-26
Monroe	Albia	Sept. 23-26
Montgomery	Red Oak	Sept. 15-19
Page	Clarinda	Sept. 2- 6
Plymonth	Le Mars	Oct. 1- 3
Poweshiek Cent'l	Malcom	Sept. 9-11
Scott	Davenport	Aug. 25-29
Shelby	Harlan	Sept. 23-26
Story	Nevada	Sept. 16-19
Tama	Tama City	Sept. 16-19
Taylor	Bedford	Sept. 11-13
Union	La Porte City	Sept. 9 11
Union	West Liberty	Sept. 16-18
Van Buren	Keosaqna	Sept. 9-12
Wapello	Ottumwa	Aug. 18-22
Warren	Indianola	Sept. 30-Oct. 2
Washington	Washington	Sept. 9-11
Wayne	Corydon	Sept. 15-19

IOWA—DISTRICT.

Agency City	Agency City	Sept. 15-18
Boone	Boone	Sept. 9-12
Mt. Joy	Davenport	Sept. 9-12
West Point	West Point	Sept. 2- 5
Mechanicsville	Mechanicsville	Sept. 9-12
Maple Valley	Battle Creek	Sept. 9-11
Milton	Milton	Sept. 2- 5
Monlton	Monlton	Sept. 30-Oct. 3
Sheldon	Sheldon	Oct. 1- 3
Strawberry Point	Strawberry P't	Sept. 23-26

KANSAS.

Anderson	Garnett	Aug. 26-29
Bourbon	Fort Scott	Oct. 7-10
Browu	Hiawatha	Sept. 16-19
Butler	El Dorado	Sept. 16-19
Chase	Cottonw'd Falls	Sept. 23 26
Cherokee	Columbus	Sept. 2- 5
Clay	Clay Center	Sept. 23-26
Clond	Concordia	Sept. 16-19
Coffey	Burlington	Sept. 16-19
Cowley	Winfield	Sept. 23-27
Crawford	Girard	Sept. 23-26
Davis	Junction City	Oct. 1- 3
Dickinson	Abilene	Sept. 22-26
Doniphan	Troy	Sept. 23-26
Ellis	Hays City	Sept. 24-26
Elk	Howard	Sept. 18-20
Franklin	Ottawa	Sept. 23-27
Harper	Anthony	Sept. 3- 5
Jefferson	Oskaloosa	Oct. 1- 3
Jefferson	Valley Falls	Aug. 26-29
Jewell	Mankato	Oct. 1- 3
Jewell	Jewell	Sept. 17-19
Lincoln	Ingalls	Sept. 11-12
Linn	La Cygne	Sept. 30-Oct. 3
Marion	Peabody	Sept. 2- 4
Marion	Marion	Sept. 23-26
Marshall	Marysville	Sept. 23-26
McPherson	McPherson	Sept. 30-Oct. 3
Morris	Council G've	Sept. 30-Oct. 3
Nemaha	Seneca	Sept. 2- 5
Osage	Bnrlingame	Sept. 16-19
Ottawa	Minneapolis	Sept 3 -Oct. 3
Platte	Platte City	Aug. 26 30
Phillips	Phillipsburg	Oct. 8-10
Rice	Lyons	Sept. 24-26
Riley	Manhattan	Sept. 23-26
Rooks	Stockton	Oct. 9-11
Saline	Salina	Sept. 23-26
Sedgwick	Wichita	Aug. 30-Sept. 3
Sumner	Wellington	Sept. 17-20
Washington	Washington	Sept. 2- 5
Washington	Greenlead	Sept. 10-12
Woodson	Neosho Falls	Sept. 22-27

MAINE.

Aroostook	Houlton	Sept. 17-18
Bnxton & Hollis	Buxton	Oct. 1- 3
Baldwin & Sebago	East Sebago	Oct. 7
Cnmberland F. C.	Cumberland	Oct. 1 2
Franklin	Farmington	Oct. 7- 9
Kennebec North	Waterville	Sept. 30-Oct. 1
Knox	Rockland	Sept. 30-Oct. 3
Lincoln	Damariscotta	Sept. 16-18
Ossipee Valley	Cornish	Sept. 16-18
Oxford	South Paris	Oct. 7- 9
Sagadahoc	Topsham	Oct. 14-16
Waldo	Belfast	Oct. 8- 9
Waldo & Penobs't	Monroe	Oct. 1- 2

MARYLAND.

Cecil	Elkton	Oct. 7-10
Harford	Bel Air	Oct. 14-17
Montgomery	Rockville	Sept. 3- 5

MASSACHUSETTS.

Amesbnry & Salisbnry	Newbnryport	Sept. 30-Oct. 1
Barnstable	Barnstable	Sept. 23-24
Berkshire	Pittsfield	Sept. 9-11
Blackstone Valley	Uxbridge	Sept. 24-25
Bristol	Taunton	Sept. 30-Oct. 1
Brockton	Brockton	Oct. 1- 3
Deerfield Valley	Charlemont	Sept. 18-19
Essex	Haverhill	Sept. 23-24
Franklin	Greenfield	Sept. 25-26
Hampden East	Chicopee	Sept. 9-10
Hampden, East	Palmer	Sept. 16-17
Hampshire	Amherst	Sept. 18-19
Hampsh'e, Frankl'n & Hampden	Northampton	Oct. 1- 3
Highland	Middlefield	Sept. 3- 4
Hingham	Hingham	Sept. 23-24
Hoosac Valley	North Adams	Sept. 16-17
Housatonic	Gt. Barrington	Sept. 24-26
Hillside	Cummington	Sept. 23-24
Marshfield	Marshfield	Sept. 10-12
Martha's Viney'd.	West Tisbury	Sept. 30-Oct. 1
Middlesex	Waltnam	Sept. 23-24
Middlesex, North	Lowell	Sept. 9-10
Middlesex, South	Framingbam	Sept. 16-17
Nantucket	Nantncket	Sept. 3- 4
Plymouth	Bridgewater	Sept. 17-19
Union	Blandford	Sept. 17-19
Worcester	Worcester	Sept. 18-19
Worcester, North.	Fitchbnrg	Sept. 23-24
Worcester, N. W.	Athol	Sept. 30-Oct. 1
Worcester, South.	Sturbridge	Sept. 11-12
Worcester, West.	Barre	Sept. 25-26

MICHIGAN.

Armada	Armada	Oct. 1- 4
Avon	Rochester	Oct. 14-16
Branch	Coldwater	Sept. 22-28
Brooklyn Union	Brooklyn	Sept. 23-26
Calhoun	Marshall	Oct. 7- 9
Central Fair	Hubbardston	Sept. 23-26
Clinton	St. Johns	Oct. 7-10
Eatou	Eaton Rapids	Oct. 7- 9
Fenton Union	Fenton	Oct. 7-10
Grand Traverse	Traverse C'y	Sept. 30-Oct. 3
Hillsdale	Hillsdale	Sept. 30-Oct. 3
Ingham	Mason	Sept. 24-26
Livingston	Howell	Sept. 23-25
Macomb	Mt. Clemens	Sept. 24-26
Oakland	Pontiac	Sept. 30-Oct. 3
Osceola	Evart	Sept. 30-Oct. 3
Osceana	Hart	Sept. 30-Oct. 2
Plainwell	Plainwell	Sept. 30-Oct. 3
Stockbridge	Stockbridge	Oct 7- 9
St. Joseph	Centreville	Sept. 30-Oct. 3
Union	Litchfield	Oct. 7-10
Van Buren	Paw Paw	Sept. 30-Oct. 3
Washtenaw	Ann Arbor	Sept. 30-Oct. 3

MICHIGAN DISTRICT.

Central Michigan	Lansing	Sept. 29-Oct. 3
Eastern Michigan	Ypsilanti	Sept. 23-26
Northeast'n Mich.	Flint	Sept. 23-25
Western Michigan	Grand Rapids	Sept. 22-27
Northern Mich	Greenville	Oct. 7-10

MISSOURI.

Chariton	Keytesville	Oct. 7-11
Clark	Kahoxa	Sept. 1- 5
Franklin	Washington	Sept. 11-13
Gasconade	Hermann	Sept. 5- 6
Clay	Liberty	Sept. 9-11
Knox	Newark	Sept. 8-13
Kuox	Edin	Sept. 25-30
Lewis	Williamstown	Sept. 15-20
Lewis	LaGrauge	Sept. 23-26
Marion	Palmyra	Oct. 14-18
Nodaway	Maryville	Aug. 25-30
Scotland	Memphis	Sept. 23-26
Shelby	Shelbyville	Aug. 25-30
Shelby	Shelbina	Sept. 2- 6
St. Clair	Appleton City	Sept. 17-20

NEW HAMPSHIRE.

Belknap	Laconia	Sept. 16-18
Grafton	Plymonth	Sept. 23-25
Suncook Valley		Sept. 30-Oct. 1
Upper Coos & Es'x.	Colebrook	Sept. 24-25

NEW JERSEY.

Burlington	Mt. Holly	Oct. 7-10
Cumberland	Bridgeton	Sept. 3- 4
Hunterdon	Flemington	Sept. 23-26
Monmouth	Freehold	Sept. 9-12
Moorestown	East Moorestown	Sep. 9-10
Somerset	Somerville	Sept. 30 Oct. 3
Sussex	Newton	Sept. 30-Oct. 3
West Jersey	Woodstown	Sept. 10-11

NEW YORK.

Allegany	Angelica	Sept. 30-Oct. 2
Broome	Whitney's Point	Sept. 9-12
Cattaraugus	Olean	Sept. 8-11
Columbia	Chatham	Sept. 16-18
Cortland	Cortland	Sept. 2- 5
Delaware	Delhi	Sept. 9-11
Fulton	Johnstown	Sept. 2- 4
Genesee	Batavia	Sept. 23-25
Herkimer	Herkimer	Sept. 16-18
Jefferson	Watertown	Sept. 16-18
Lewis	Lowville	Sept. 16-18
Liviugston	Genesco	Oct. 2- 3
Montgomery	Fonda	Sept. 9-11
Niagara	Lockport	Sept. 18-20
Oncida	Rome	Sept. 15-19
Ontario	Canandaigna	Sept. 30-Oct. 2
Orange	Middletown	Sept. 23-26
Orleans	Albion	Sept. 18-20
Oswego	Mexico	Sept. 16-18
Otsego	Cooperstown	Sept. 22-24
Putnam	Carmel	Sept. 16-18
Queens	Mineola	Sept. 23-25
Rensselaer	Lansingbnrgh	Sept. 9-12
St. Lawrence	Canton	Sept. 16-18
Saratoga	Ballston Spa	Sept. 2- 5
Schenectady	Schenectady	Sept. 16-19
Schoharie	Schoharie	Sept. 30-Oct. 2
Seneca	Waterloo	Sept. 24-26
Stenben	Bath	Sept. 30-Oct. 3
Suffolk	Riverhead	Sept. 30-Oct. 2
Tioga	Owego	Sept. 16-18
Tompkins	Ithaca	Sept. 16-18
Yates	Penn Yan	Oct. 8-10

OHIO.

Allen	Lima	Sept. 24-27
Ashtabula	Jefferson	Sept. 23-26
Athens	Athens	Oct. 1- 3
Anglaize	Wapakoneta	Sept. 30-Oct. 3
Belmont	St. Clairsville	Sept. 3- 5
Brown	Georgetown	Oct. 7-10
Butler	Hamilton	Oct. 6-10
Carroll	Carrollton	Sept. 30 Oct. 2
Champaign	Urbana	Aug. 26-29
Clark	Springfield	Aug. 26-29
Clinton	Wilmington	Aug. 12-15
Columbiana	New Lisbon	Sept. 23-25
Coshocton	Coshocton	Oct. 7-10
Crawford	Bucyrus	Sept. 23-26
Cuyahoga	Chagrin Falls	Sept. 2- 5
Darke	Greenfield	Oct. 14-17
Defiance	Hicksville	Sept. 16-19
Delaware	Delaware	Sept. 9-12
Erie	Sandusky	Sept. 22-26

Fairfield	Lancaster	Oct. 15-18
Geauga	Burton	Sept. 15-18
Greene	Xenia	Sept. 10-12
Hamilton	Carthage	Aug. 19-22
Hancock	Findlay	Oct. 1-4
Hardin	Kentou	Sept. 22-27
Harrison	Cadiz	Oct. 1- 3
Highland	Hillsboro	Aug. 5- 8
Holmes	Millersburg	Sept. 30-Oct. 3
Huron	Norwalk	Sept. 16-19
Jefferson	Smithfield	Sept. 24-26
Lake	Painesville	Sept. 29-Oct. 2
Licking	Newark	Sept. 30-Oct. 3
Logan	Bellefoutaine	Sep. 30-Oct. 3
Lorain	Elyria	Sept. 30-Oct. 3
Mahoning	Youngstown	Sept. 23-26
Marion	Marion	Sept. 30-Oct 3
Medina	Medina	Sept. 10-12
Mercer	Celina	Sept. 2- 5
Miami	Troy	Sept. 30-Oct. 3
Monroe	Woodsfield	Aug. 26-29
Morgan	McConnellsville	Sept. 23-26
Morrow	Mt. Gilead	Oct. 7-10
Noble	Sarahsville	Oct. 1- 3
Ottawa	Port Clinton	Sept. 17-19
Paulding	Paulding	Sept. 23-26
Perry	New Lexington	Sept. 24-26
Portage	Ravenna	Sept 24-26
Preble	Eaton	Sept. 29-Oct. 3
Putnam	Ottawa	Sept. 24-27
Richland	Mansfield	Sept. 23-26
Ross	Chillicothe	Aug. 26-29
Sandusky	Fremont	Oct. 7-11
Scioto	Portsmouth	Sept. 10-12
Seneca	Tiffin	Sept. 24-27
Shelby	Sidney	Sept. 23-26
Stark	Canton	Sept. 30-Oct. 3
Summit	Akron	Sept. 30-Oct. 3
Trumbull	Warren	Sept. 17-19
Tuscarawas	Canal Dover	Oct. 7-10
Union	Marysville	Sept. 30-Oct. 3
Van Wert	Van Wert	Sept. 11-13
Warren	Lebanou	Sept. 16-19
Washington	Marietta	Sept. 17 19
Williams	Bryan	Sept. 16-19
Wood	Tontogany	Sept. 30-Oct. 3
Wyandot	Upper Sandusky	Oct. 8-11

OHIO INDEPENDENT.

Attica		Oct. 7-10
Ada		Sept. 16-19
Bantam		Aug. 26-29
Beverly		Oct. 1- 3
Mechanicsburg		Sept. 9-12
Conneaut		Sept. 8-10
Clyde		Sept. 30-Oct. 3
Cambridge		Sept. 30-Oct. 2
Deerfield		Sept. 26-27
E. Fairfield		Sept. 17-19
Garretsville		Sept. 8-11
Greenfield		Oct. 14-17
Hartford		Sept. 9-12
Jamestown		Aug. 26-29
Marlboro		Oct. 9-11
New London		Aug. 19-22
Orrville		Oct. 15-18
Plymouth		Sept. 30-Oct. 3
Patmos		Sept. 11-13
Sabina		Aug. 18-22
Laurelville		Sept. 15-17
Seville		Sept. 25-27
Tontogany		Sept. 30-Oct. 3
Uhrichsville		Sept. 30-Oct. 3
Wellington		Aug. 26-28
Youngstown		Sept. 23-26
No. Lewisburg		Sept. 23-26
Barlow		Sept. 25-26
Pataskala		Aug. 26-29
Blanchester		Aug. 25-29
Newcomerstown		Oct. 7-10
Washington		Oct. 1- 3

PENNSYLVANIA.

Adams	Gettysburg	Sept. 22-25
Armstrong	Parker's L'd'g.	Sep. 30-Oct. 2
Beaver	Beaver	Sept. 23-26
Berks	Reading	Sept. 23-26
Bradford	Towauda	Sept. 23-26
Burgettstown	Union	Sept. 30-Oct. 2
Butler	Butler	Sept. 16-18
Canton Union	Canton	Sept. 24-26
Carbon	Lehighton	Oct. 7-10
Chester	West Chester	Sept. 25-27
Clarion	Clarion	Sept. 23-26
Columbia	Bloomsburg	Oct. 15-18
Connoquecussing Valley	Harmony	Sept. 9-12
Crawford	Conneautville	Oct. 1- 3
Delaware	Elwyn	Oct. 9-11
Doylestown	Doylestown,	Sept. 30-Oct. 3
Easton Farmers'	Easton	Sept. 23-26
Erie	Erie	Sept. 23-26
French Creek V.	Cochranton	Sept. 17-19
Gratz Driv'g Park	Gratz	Sept. 23-26
Harford	Harford	Sept. 24-25
Indiana	Indiana	Sept. 30-Oct. 3
Jefferson	Brookville	Sept. 16-19
Keystone & Buckeye	Sharon	Sept. 16-19
Lackawanna	Scranton	Sept. 30-Oct. 3
Lancaster	Lancaster	Sept. 1- 6
Lebanou Valley	Lebanon	Sept. 30-Oct. 3
Lehigh	Allentown	Sept. 30-Oct. 3
Luzerne	Wyoming	Oct. 7-10
Lycoming	Williamsport	Oct. 2- 4
Mercer	Stoneboro	Sept. 30-Oct. 2
Mercer Central	Mercer	Sept. 10-12
Montour	Danville	Oct. 1- 4
Northampton	Nazareth	Oct. 7-10
Northam'n F. Int.	Easton	Sept. 23-26
Northumberland	Sunbury	Sept. 18-20
Northwestern	Corry	Sept. 30-Oct. 2
Oxford	Oxford	Sept. 24-26
Potter	Coudersport	Sept. 23-25
Ringtown	Ringtown	Sept. 16-19
Schuylkill	Orwigsburg	Sept. 30-Oct. 3
Sullivan	Forksville	Sept. 16-18
Susquehanna	Moutrose	Sept. 17-18
Tioga	Mansfield	Sept. 24-26
Tioga	Wellsboro	Sept. 17-20
Troy	Troy	Sept. 16-20
Venango	Franklin	Sept. 9-12
Warren	Sugar Grove	Sept. 16-18
Wayne	Honesdale	Sept. 24-26
Wellsboro	Wellsboro	Sept. 17-20
Wyoming	Tunkhannock	Sept. 24-26
York	York	Oct. 7-10

RHODE ISLAND.

Aquidneck	Newport	Sept. 16-18
Washington	West Kingston	Sept. 9-11
Woonsocket	Woousocket	Sept. 16-18

VERMONT.

Caled nia	Lyndonville	Sept. 16-18
Champlain Valley	Vergennes	Sept. 16-18
Franklin	Sheldon	Sept. 3- 5
Lamoille Valley	Morristowu	Sept. 23-25
Poultney	Poultney	Sept. 9-11

VIRGINIA.

Franklin	Franklin	Nov. 18-21

Curing Sumach.

The following is the Virginian method of gathering and curing sumach for market: The leaves are stripped by hand from the branches of the bushes where they stand, and thrown into baskets. Care must be taken to keep the leaves clear of twigs, litter, and the bunches of sumach seed, which are often abundant upon the bushes the latter part of summer.

The filled baskets are emptied into a cart or wagon, which stands ready, and the leaves are taken at once to the curing yard, where they are spread upon low scaffolds to dry. The green leaves should not remain in bulk any length of time. Nothing begins to heat sooner than green sumach leaves, even when in very small heaps. A basketful will acquire a sensible heat in one hour. It is therefore necessary to dry them quickly, to prevent heating and spoiling.

Spread the leaves thinly on the scaffold. By the second day, if the weather is clear and hot, the contents of two scaffolds may be placed on one, thus providing room for more fresh leaves. The leaves will cure enough to house in bulk in three days of fair weather. It is best to have the scaffolds under trees or other objects to shade the sumach while curing, as thus a finer color is imparted to it.

It takes several pounds of the green leaves to make one when cured, and a person must be nimble if he gathers enough in a day to make a hundred pounds of dried sumach. The price paid for cured leaves here, does not make the business very profitable. We were paid one dollar and a quarter per hundred pounds last year, shipping it in bags eighty miles to Richmond. The cost of bags, freight, cartage, etc., is to be deducted from the selling price named. The curing season coming, however, at a comparatively leisure time, there is some margin for profit, and our country people may well turn an honest penny at this small industry. The plant grows wild, and requires no cultivation or care. The collector here only cures the leaves, and sells them thus to the grinders, who have their mills and warehouses in the cities of Petersburg, Richmond, etc. If collectors had the means for pressing the cured leaves into bales of small compass, so as to save room in transportation, farmers at a distance from the markets could well afford to collect and cure sumach leaves for shipment. Those having cotton or hay presses should use them to advantage.

VIRGINIAN.

The Corn Worm.—Mr. J. H. Robinson, Barry County, Michigan. The insect you describe as injurious to your sweet corn, is the caterpillar of *Heliothis armigera*, commonly called the corn-worm. The perfect insect is a moth of a pale yellow color, with olive and brownish markings. The female deposits her eggs upon the silk of the ear, and the young caterpillars soon hatch and make their way to the grains beneath the husks. When the worms are within the husks, no remedy can be applied. All work with this pest must be of a preventive character. The same insect attacks the cotton bolls in the Southern States, where it is known as the "boll worm." It is also destructive to the tomato crop, and will feed upon hemp, peas, string-beans, and various plants of the flower-garden. Traps consisting of lanterns placed in a shallow pan holding water, with a little kerosene floating upon it, have been used with good results. These night-traps need to be set early in the season, when the moths first appear, and before the eggs have been deposited. All worms found in the ears of corn or elsewhere, should be destroyed.

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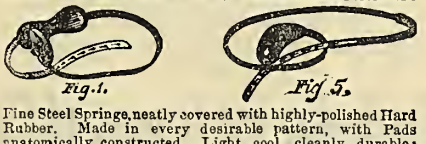


Fig. 1. Fig. 2.

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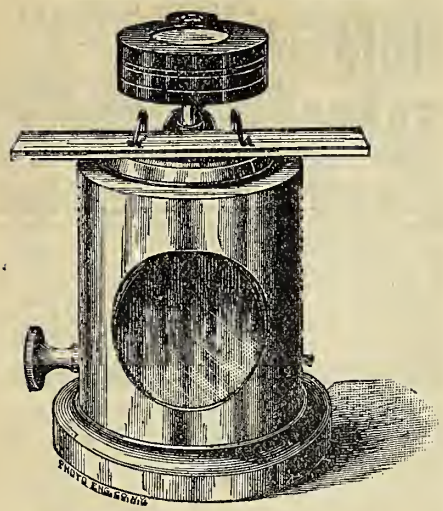
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Friends of Agriculture.

Mr. Lawson Valentine.—We infer from pleasant letters received from Mr. Lawson Valentine, during his European journeys, that he is collecting a large amount of valuable information, which, on his return to the United States, will be utilized at Houghton Farm and elsewhere, for the benefit of American Agriculture. His latest letter, received as we go to press, speaks of his going to Switzerland with his family.

Mr. D. D. T. Moore.—The friends of D. D. T. Moore will be pleased to learn that he contemplates starting a new journal. Mr. Moore failed at the hight of his prosperity, because he had distributed his means in too many other channels. He preferred to fail honorably, rather than get money by hogus statements of his actual condition — from relatives, employees, poor ministers, hard-working printers, and the public generally—and then decamp to other parts. He is still here in New York, and we shall publish an interesting article from him next month.

Mr. J. S. Woodward.—We welcome Mr. J. S. Woodward to New York journalism. Mr. Woodward has the enviable reputation of being a high-toned honorable gentleman.

See Pages 394 & 395.

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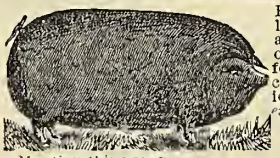
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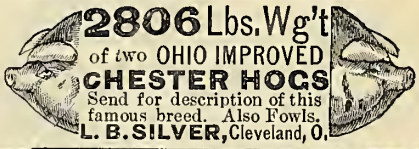
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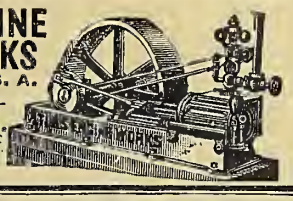
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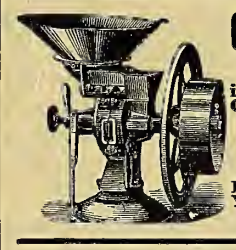
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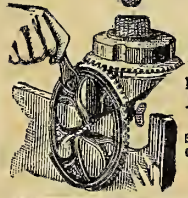
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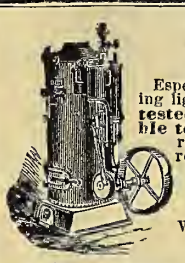
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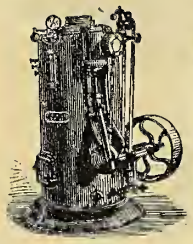
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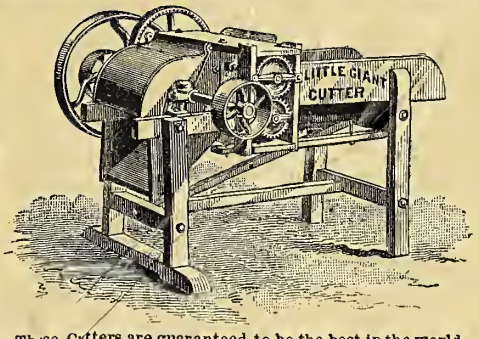
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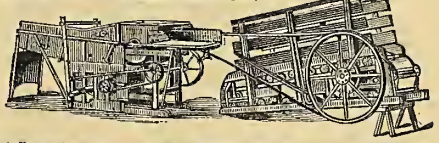
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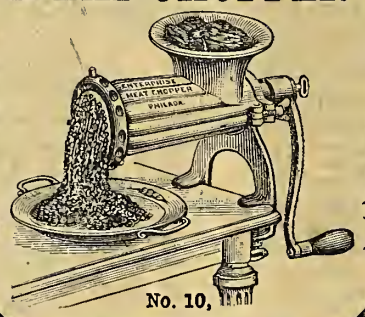
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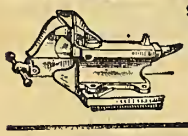
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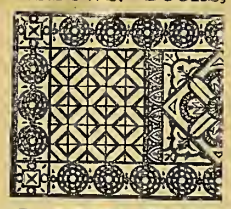
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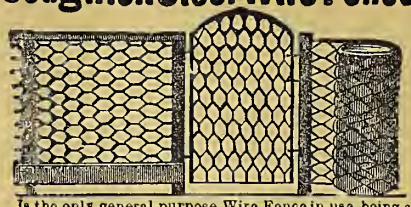
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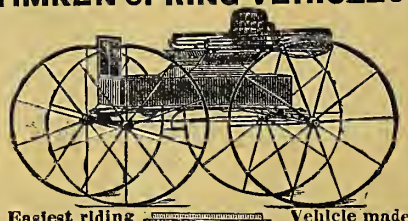
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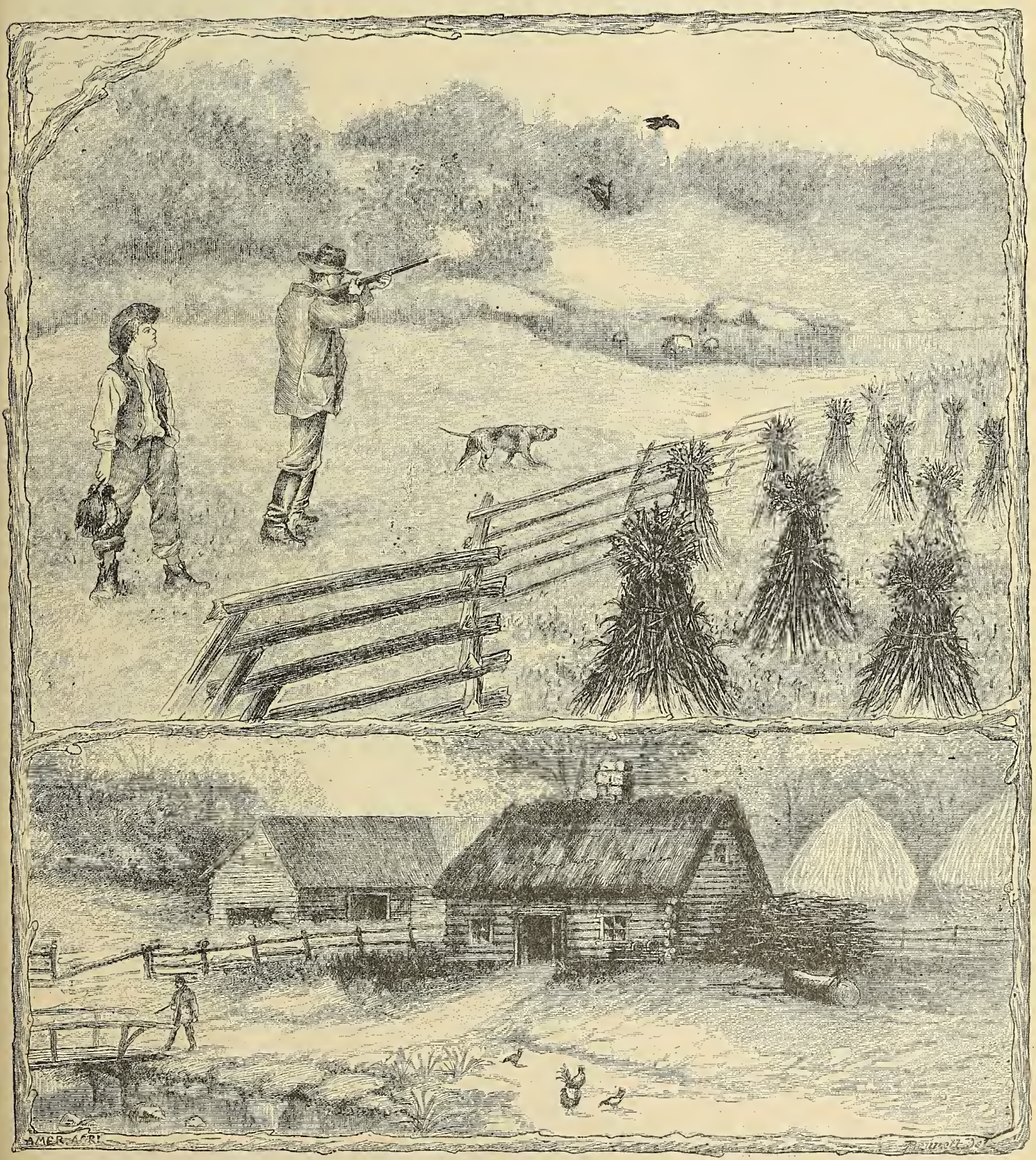
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Contents of this Number.

"A Day Off."....*Illustrated*.. 401
Adobes as a Building Material.....4 *Illustrations*.. 411
Among the Farmers.... 418
Animal Ailments.... 414
Animals, Feeding and Care of Farm...4 *Illustrations*.. 405
Apples, Stored in Pits.... 405
Barn, A Florida....2 *Illustrations*.. 410
Bee Notes for October.....2 *Illustrations*.. 403
Bit, Wooden, for Cow.... 419
"Book Farmers."... 406
BOYS' AND GIRLS' COLUMNS:
Caught in the Battle....*Illustrated*.. 426
What are Shrimps?....*Illustrated*.. 427
Rebus Puzzle....*Illustrated*.. 427
Transposition Rebus....*Illustrated*.. 427
Do You Know my Boarders?.... 427
The Doctor's Talks....2 *Illustrations*.. 428
A Dakota Boy's Letter to his Friend. *Illustrated*.. 428
Bulbs, Fall or Holland.... 423
Cattle, Holland—A Good Record.... 411
Chicken Cholera, Prevent.... 406
Coach, The Stage, In New York City...*Illustrated*.. 408
Colts—Hints About Breaking.... 404
Cottonwood-Beetle, The Streaked....2 *Illustrations*.. 406
Crop-Feeding, Recent Experiments in.. 419
Crops, What shall we Gather First?.... 416
Daikon, Japanese Winter Radish....3 *Illustrations*.. 412
Derrick, A Convenient.... 409
Dog, Our....*Illustrated*.. 416
Farm, Beautifying the....*Illustrated*.. 406
Farm Work for October....*Illustrated*.. 402
Farms and Gardens in New York City.....2 *Illus*.. 417
Features of this Number.... 402
Frogs, How, Help Farmers.... 405
Fruit House, Dryness in the.... 406
Fruitfulness and Abundance....*Illustrated*.. 415
Fruit—Ripening and Decay.... 423
Gad Fly, The Ox.... 2 *Illustrations*. 420
Garden, Flower, and Lawn.... 403
Garden, Market and Kitchen.... 403
Garden, The Fruit.... 403
Gate, A combined Hinge and Sliding.....2 *Illus*.. 410
Grapes, A New Method of Preserving.....3 *Illus*.. 421
Grass, A Rare, Useful and Ornamental..*Illustrated*.. 420
Greenhouse and Window Plants.... 403
Hand Cart, A.... 412
Horses, the Fastest Trotting....*Illustrated*.. 404
HOUSEHOLD.
Curtains for Stained Glass Window...*Illustrated*.. 424
Table Etiquette.... 424
A Table Jardiniere....*Illustrated*.. 424
A New Photograph Receiver....*Illustrated*. 424
How to make Good Pickles.... 424
Our Sleeping Rooms.... 425
A Corner Medicine Cabinet....*Illustrated*.. 425
Shoe-Case, and Bag for Soiled Linen.2 *Illustrations*. 425
Have more Salads—Their Healthfulness.... 425
Insecticides, Our Most Valuable.... 421
Jay-Eye-See....*Illustration*..404
Labels, Look to, Now.... 419
Law for Farmers—Hiring Farm Help.... 419
Leaf-Rollers of the Apple....*Illustrated*.. 418
Live Stock Notes for October.... 402
Mangers for Cattle....*Illustrated*.. 420
Mushroom Growing.... 420
Notes from the Pines....*Illustrated*.. 422
October.... 402
"On the Road"....2 *Illustrations*.. 429
Onion Seed, Raising.... 410
Orchard and Nursery.... 403
Peat-Moss, A New Use for.... 405
Pen, A Movable Pasture....*Illustrated*.. 410
Pen, Swine Feeding, for Corn....*Illustrated*.. 416
Pigeon Breeding—Jacobins and Fantails....2 *Illus*.. 414
Pine, DeLancey's....*Illustrated*.. 423
Plants, Wintering, in Cellars.... 421
Plum, An Entirely New....*Illustrated*.. 412
Poppy, A New and Brilliant....*Illustrated*.. 422
Road-Building, Good and Bad.....3 *Illustrations*. 419
Salt and Ashes for Swine....*Illustrated*.. 416
Sheep, Characteristic Heads of.....2 *Illustrations*.. 409
Sheep, Management of, in Winter.... 409
Sheep, Shropshire and Hampshire-down.... 420
Testing, Proper, of Butter Cows.... 410
Tree Trunks, Protecting from the Sun.... 421
Tule Lands and their Cultivation.... 412
Walks and Talks on the Farm.... 407
Water, Is Cold, Injurious to Plants?.... 421
Winds, Northwest, Kill the Peaches.... 410

For Editorial Correspondence, Humbug exposures, book reviews, business announcements, and other matters of special interest, see the last pages of this number of the American Agriculturist.

October.

Season of mist and mellow fruitfulness!
Close bosom friend of the maturing sun;
Conspiring with him how to load and bless
With fruit the vines that round the thatch eaves run;
To bend with apples the moss'd cottage trees,
And fill all fruit with ripeness to the core. KEATS.

Renew Now.

Do not wait, please, until the end of the year before renewing your subscription, but forward your name for 1885, on receiving this number.

A Day Off.

A spirited engraving on the previous page suggests October and a favorite rural pastime.

Bounteous Harvests.

The engraving on page 415 typifies the ripeness and abundance of the season; the in-gathering of the "fruits of the earth," proves this to be almost without exception a year of plenty and fruitfulness.

Rare Premiums.

The Premiums given to our subscribers for efforts on behalf of the *American Agriculturist* comprise a more varied and valuable list than ever before presented by us. We have secured them at great bargains, of which our subscribers get the benefit.

To Our Old Readers and Friends.

Within a comparatively brief period this year, over four thousand subscribers have written us congratulatory letters regarding the *American Agriculturist*. Not only will the great improvements witnessed in the May, June, July, August, September, and October numbers continue, but we are making arrangements for additional writers and additional departments. We have appreciated your support in the past, and with these additions and improvements to the paper, may we not expect you to continue in our great army of readers, and bring many recruits with you for 1885?

Every Subscriber, Club Raiser, and Exchange Newspaper, will please turn to page 436.

Features of this Number.

Joseph Harris, besides his instructive Walks and Talks, has a timely article on "Sheep in Winter," and Gathering Crops....D. D. T. Moore, long editor of "Rural New Yorker," writes on Agricultural Fairs as Educators....Adobes, the cheapest building material of the Far West, are described by J. L. Townsend, of Utah....Remarkable milk and butter records of Holland Cows are given by Dudley Miller....The ailments of numerous Farm Animals are prescribed for by Professor D. D. Slade, of Harvard University. Col. M. C. Weld tells what he saw "Among the Farmers," and writes on Milk-fever, Sheep, Breaking Colts, etc. Beautifying the Farm is treated by Elias A. Long. David W. Judd continues his notes of travel in the Far West. Dr. Byron D. Halsted writes about "Our Dog" (with portrait), Experiments in Crop Feeding, The Cottonwood Beetle and other insects. The Ripening and Decay of Fruit is treated by Doctor George Thurber, who describes an Entirely New Plum, Japanese Radishes, and has numerous other horticultural articles. Legal points in Hiring Farm Help are made plain by H. A. Haigh. Housekeepers will find full directions for making pickles by Aunt Hattie. Ethel Stone gives hints on Table Etiquette, and useful and ornamental articles are illustrated. The Boys and Girls have an illustrated story, the Doctor's Talks, a Dakota Boy's Letter, Puzzles, etc. All interested in the trotting feats of Jay-Eye-See, will be glad to see a portrait of this horse. The full page and other illustrations are executed by such artists as Forbes, Bennett, Scranton.



We hope the town, county, district, State, and other fairs, have attracted the merited attention of farmers everywhere. Many of these exhibitions are held this month, and there is still time to cast in the sickle of personal attendance, and reap a large harvest of new and valuable ideas. Winter wheat may be sown up to the middle of the month. Where the soil is deep, rich, and mellow, late sowing may be better than early, as the plants thus escape the ravages of the Hessian fly. October sown wheat may be much benefited by an application of a quick-acting commercial fertilizer, which will stimulate the young plants to a rapid growth. Two hundred pounds per acre of either sulphate of ammonia or nitrate of soda may greatly increase the crop.

Where there is a market for husks, the ears of corn may be picked from the stalks and husked in the barn, otherwise it is better to husk the corn in the field. If the seed ears have not been selected, do this important work now. Leave a few of the husks on the seed ears, by which they can be braided and hung up in bunches in a dry place out of the reach of vermin. After husking, bind the stalks in bundles, and set these in large shocks. If this work is properly done, the fodder may stand in the field until winter, and be drawn to the barn as desired. As soon as frosts are expected, the beets must be harvested; next secure the carrots, and follow with the turnips. Roots keep well while stored in pits, if frost does not reach them, and there is sufficient ventilation provided.

Potatoes should have been harvested before now. Gather and burn the tops if Paris green has been used upon them. A general cleaning up around the barns and out-buildings should be made before winter sets in. Keep the teams at work with the plows, hauling swamp-muck, etc. In short, do whatever work that will aid in the coming spring with its pressing labors.

LIVE STOCK NOTES.

Keep the horses in the stables at night. The season is now too far advanced for night-pasturing. A cold storm might do exposed horses much harm. When unavoidably drenched, rub the horses thoroughly and blanket them. Oil the harnesses and keep them clean. The pasture supply of food for cows is now falling off, and green food must be added. The vegetable garden and the root field should furnish wholesome food. It is, however, not wise to feed any waste rubbish to the milch cows. Young stock should be kept in a thriving condition; their future value largely depends upon a vigorous, early growth. Early lambs to those who have the facilities for raising them are always profitable. Weed out the poor ewes, and prepare them for the shambles. Use only pure-blood rams. Plan now for lambs to come in March. Brood sows should be in good condition. Bear in mind that it pays best to fatten and dispose of the hogs before the coldest winter weather comes. Push them now for the early market. Fowls need warm winter quarters provided for them with abundance of wholesome food and pure water. They do not bear crowding closely together in large numbers.

Market and Kitchen Garden.

Celery, cabbages, spinach, etc., should have their late growth aided by keeping the soil loose and free from weeds ...Green weeds should go to the compost heap—stakes, brush, and what rubbish will burn, to the burn heap; stones, tin-cans, and other incombustibles should go to a pit made for the purpose....Cut the asparagus tops when they begin to turn yellow, and burn. Do not scatter the seeds....The celery crop is to be "handled" late this month by bringing the stalks erect and keeping them so by drawing earth to the base.... Turnips, parsnips and salsify are not injured by frosts; beets and carrots lose sweetness by freezing....Thin spinach that is to be wintered by cutting out plants for present use....Dig sweet potatoes as soon as the frost touches the vines. Handle carefully, and store in barrels or boxes....If frost is feared, collect the squashes in heaps and cover with the vines....Tomatoes are injured by frost. A few vines, when frost is threatened, may be pulled up, all the very green fruit cut away, and the plant with partly ripened fruit hung up in the barn or elsewhere, under cover....Divide old rhubarb roots with a bud to each piece, and plant in very rich soil, four feet apart each way....Sage, thyme, and other sweet herbs, may be cut, tied in bunches, and hung in the shade to dry. Cutting every other plant will give the rest room to grow Cold-frames should be made ready to receive cabbage, cauliflower, lettuce, and other plants.

The Fruit Garden.

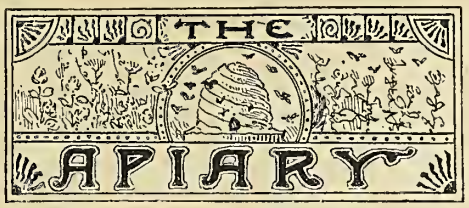
Blackberries and Raspberries start very early, fall planting is preferable. The tips of Black-caps that touch the ground should be held in place by a little earth. To propagate from root cuttings, cut the roots into pieces two or three inches long, and place in a box with alternate layers of roots and soil. Bury the box in a dry place, below reach of frost....After the currant and gooseberry leaves fall, prune. Make cuttings of last summer's growth, and plant at once....Keep strawberry beds clear of weeds, cut off runners from those planted last summer, and cover the soil with straw.

Flower Garden and Lawn.

The lawn should not be cut too closely; leave it long to protect the roots in winter....If geraniums and other tender flowers are protected from early frosts, they will continue in bloom for some weeks. Protect with newspapers, light cloths, or leafy boughs....Plants to be potted should be taken up in time to be established before cold weather. Plant the Holland bulbs as early as possible. See article on page 423. Tender bulbs, such as gladiolus, tiger-flower, tuberoses, etc., should be taken up, dried, labeled, and stored. Lift cannas before frost kills the tops....Perennials may be taken up, divided, and reset in new places.... Chrysanthemums to bloom in the bed will need stakes; to those established in pots, give weak liquid manure....After the frost has touched the dahlia tops, cut away, and dig the roots on a dry day. Store in any place that will keep potatoes.

Greenhouse and Window Plants.

Have the house in readiness to receive the plants. Tender tropical kinds may go in before cold nights check them....Plants for the window may be set on a veranda at first. Repot any that need it, and see that all are free from insects—have the pots clean....Pot bulbs and plants to be forced, and give a rest of some weeks in a dry cellar....Fill window boxes and hanging baskets early, and have the plants well established before taking in....Ivy is the best climber for general use. Canary-bird flower to be raised from seeds, is effective....Annuals for blooming during the winter, may be sown now and every two weeks.... Supplies of soil, sand, moss, pots, and whatever else that is likely to be required for greenhouse or window plants in winter, should be laid in now.



Bee Notes for October.

W. Z. HUTCHINSON.

Preparations for Winter.—If bees require feeding, there should be no delay. Bees are ready for winter when in chaff hives, *i. e.*, double-walled hives, with a pillow or cushion of chaff, forest leaves, or other absorbent, placed in the upper story. Bees that are to be wintered out of doors in single-walled hives, need some additional protection, and it should be given at once, that the bees need not be disturbed after they have settled themselves for their long winter nap. We know of no cheaper or better method of protecting bees upon their summer stands, than that of surrounding the hives with several inches of chaff, sawdust, planing-mill shavings, forest leaves, or other material that is a poor conductor of heat. To keep the packing in place, a box of rough boards without top or bottom, one foot larger each way than the hive, should be set down over the hive, the lower edges on three sides resting upon the ground, while the front end is enough narrower to allow the hive stand *a*, figure 1, and front end of the lower board, *b*, to slightly project. The strips of wood, *c*,*c*, are three-eighths inch thick, and seven-eighths inch wide, the back ends of which are thrust a short distance into the entrance of the hive. A thin board, *d* (a piece of shingle will answer), is tacked to the upper sides of the strips *c*, *c*, and extends back until it comes in contact with the front of the hive above the entrance, thus forming a support to the sawdust or chaff above, and furnishing the bees with a passage-way underneath. A narrow piece of thin board, *e*, is tacked under the front ends of the pieces *c*, *c*, and extends back to the front end of the bottom board, thus furnishing the bees with an alighting-board. The queen-excluding honey-board should be turned over, thus forming a three-fourths-inch space above the frames, which will allow the bees to readily pass from comb to comb. Over the honey-board should be spread a piece of burlap, or old carpet. One of

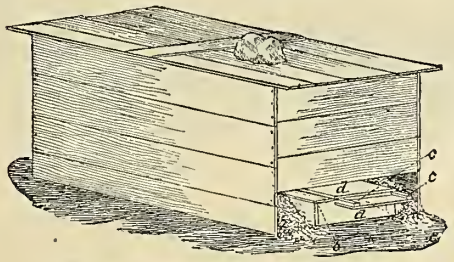


Fig. 1.—A BEE-HIVE WINTER COVER.

the cases for holding sections should be placed over this covering, filled with some of the packing material, and covered with the regular hive cover. A shingle nail is laid under each corner, to allow the escape of moisture. The next step is to fill with chaff or sawdust, the large box surrounding the hive. Some of the packing material will run out around the front of the hive, but this does no harm. It would, perhaps, be better if it was banked up in front of the hive until there was only room for the bees to pass. After the box is filled, it can be covered with a "shade-board," kept in place by laying a stone upon it.

In some respects this method of wintering is superior to all others. If a warm day occurs in winter or early spring, the bees can enjoy a purifying flight. The protection enables the bees to raise large quantities of brood early in the season. These hives are less expensive, and more easily handled than chaff hives. Bees in them are managed with less labor. The sawdust that remains around the hives after the rough boxes are removed, prevents the grass from growing. The packing should remain around the hives until the weather is warm and settled in spring.

Wintering Bees in "Clamps."—Wintering bees by burying them in the ground is an old method, practised but little of late, until quite recently. In burying bees, first dig a pit seven feet wide at the top, the length depending upon the number of colonies to be buried, with walls, *a*, *a*, figure 2, sloping forty-five degrees. Fence posts or stout poles, *b*, are laid across the top, with the ends embedded in the sloping sides, until their upper sides are eighteen or twenty inches below the surface level. The pit is filled with straw, *c*, *c*, up to the posts; boards are laid upon the posts, and the hives placed in rows upon the boards. After the hives have been covered with a foot or more of straw, poles as rafters, *d*, *d*, are placed over them, and covered with a layer of straw. A foot or more of earth over the whole, and a drain, *e*, complete the job. A sandy hillside is an excellent location for a "clamp." Probably not more than twenty-five colonies should be buried in one "clamp," unless given considerable room inside, and abundant ventilation. The bees should not be buried until just

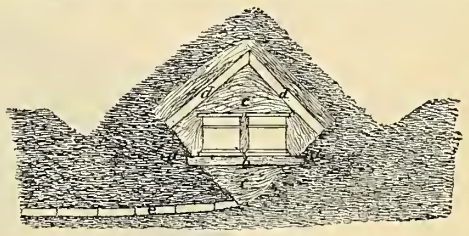


Fig. 2.—SECTION OF A "CLAMP."

before the ground freezes for the winter, and not dug out until they can gather pollen.

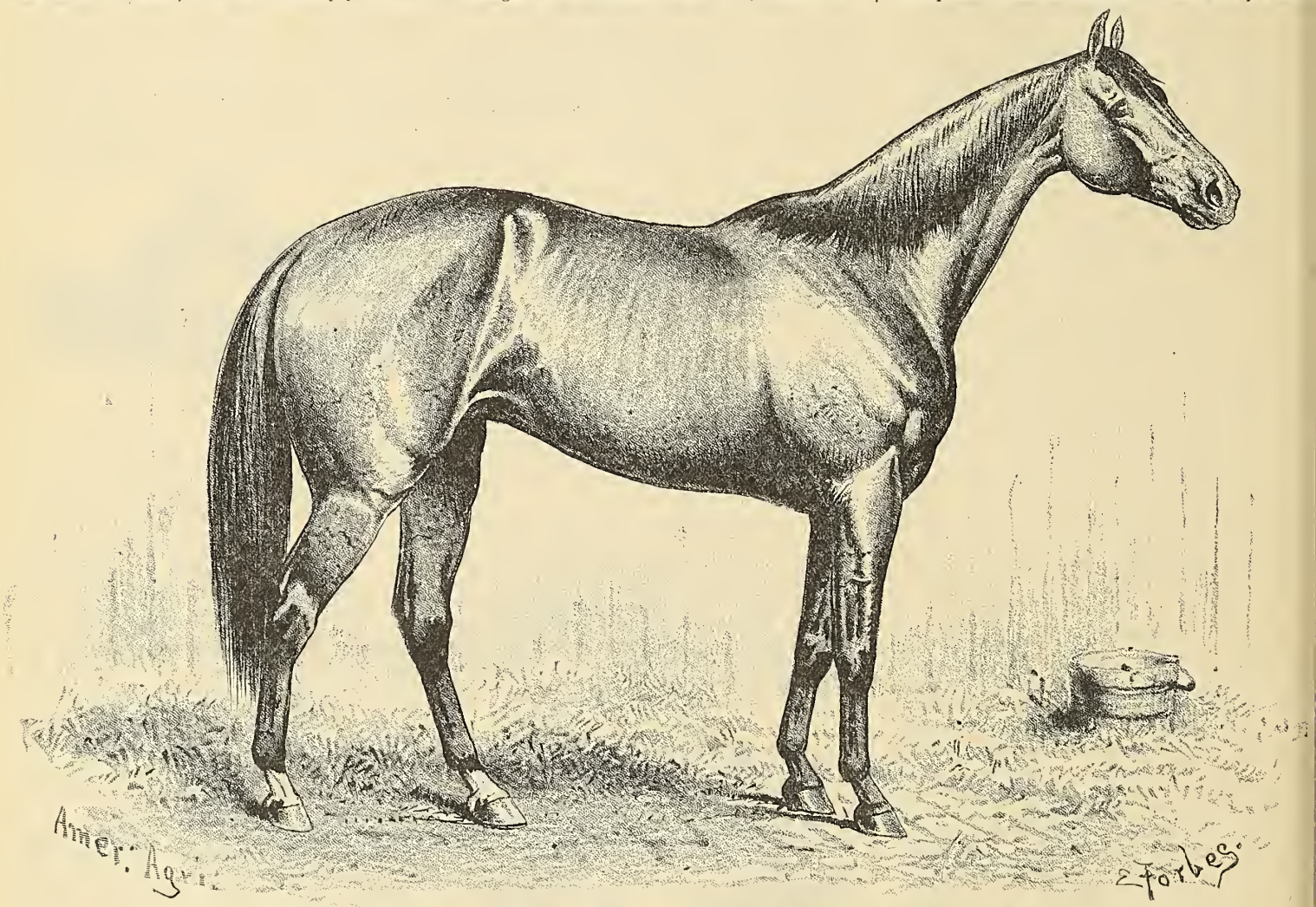
Cellar Wintering.—Bees that are to be wintered in a cellar, should be left out until it is so late that there is no prospect of their enjoying another flight. The cellar needs to be well ventilated, but as to whether the atmosphere should be moist or dry, authorities differ. Keep the temperature of that degree at which bees are most quiet.

Autumn Care of Orchard and Nursery.

The gathering of late fruits will be an important work this month, one which requires more care than is usually given to it. The longest keepers may hang until there is danger of frosts. The color of the fruit, the ripeness of the seeds, the readiness with which the stem of the fruit parts from the tree, and the falling of the fruits, are all signs of ripeness. Winter pears are to be treated the same as winter apples. Do not mix varieties, but give each kind a separate barrel or box. Fruit to be kept, should not be taken to the cellar or fruit house until frosty nights. In packing fruit for market, make first and second qualities, and use all inferior fruit at home. Have the fruit of even quality all through the barrel, using barrels of full size. Always bring the head in place by sufficient pressure to prevent shaking. Cider apples are not injured by light frosts. Placed in heaps the fruit loses water, and the juice becomes richer. Cool weather is best for cider-making. Top-dress orchards to keep up fertility any time this month. Order nursery trees to be planted this fall, or heeled-in for spring planting. Grapes, when quite ripe, hang straight down from the vine, the stem becoming limber. Catawba, Iona, Isabella and Diana grapes, are usually kept by packing in five-pound boxes. Fill from the bottom, using pressure to bring the bottom in place. Expose clusters to the air in a dark room to toughen the skin before packing. Keep the boxes in a low uniform temperature in a dry place. Experiments with keeping grapes with their stems in water, are described elsewhere. Pruning may be done as soon as the leaves fall. New vines may be planted. Top-dress the orchard with fine manure, and throw up a mound of earth around young trees.

Jay-Eye-See.

Having already presented a spirited engraving of Maud S, and her mate Aldine, drawn expressly for us by Edwin Forbes, we herewith give a spirited portrait of Jay-Eye-See, by the same artist. This picture was taken for us by Mr. Forbes just before Jay-Eye-See trotted on the Prospect Park Course, Brooklyn, August 26th, this year, when he trotted a mile in 2:12¼. Jay-Eye-See trotted a mile at Providence, R. I., in 2:10, thus beating the then best record of Maud S, the Queen of the turf for over three years. Though dethroned for a day, Maud S subsequently, on the track at Cleveland, O., regained with great eclat her former first place by trotting a mile in the unpreecedented time of 2:09¾. Mr. Robert Bonner, who has recently purchased Maud S from Mr. William H. Vanderbilt, stood ready to likewise purchase Jay-Eye-See from his owner, Mr. J. I. Chase, should he, on the Prospect Park Course, beat the best time of Maud S. His time, however, was not as good, within two and one-half seconds, as he had already made at Providence, the weather and the track both being against him in this race against his previous record. Jay-Eye-See, a black six-year-old gelding, is a remarkable result of the breeding together of horses in whose veins flow the blood of famous trotters. He is the fastest gelding in the world, sired by Dictator, a son of Rysdyk's Hambletonian, both famous trotting horses of the most natural type. Jay-Eye-See is thus a full member of the most celebrated of all trotting families. His sire is a brother of Dexter, the fastest trotter of his time, who beat the best record of Flora Temple for three successive years. These bits of pedigree show that trotting powers are an inheritance, *i. e.*, speed on the track runs in the blood with marked certainty. Americans take an honest pride in their trotters because they are the outgrowth of American ideas. There was from the first a strong public sentiment against racing running horses, and the trotter has come up to supply a natural sporting want. The breeding of trotting horses for the sake of great speed upon the race track is not in itself desirable. But by developing quick roadsters the American trotter is doing a good work for farmers and all persons who can use a rapid stepping horse with profit as well as pleasure.



"JAY-EYE-SEE"—THE FASTEST TROTTING GELDING.

Drawn (by Edwin Forbes) and Engraved for the American Agriculturist.

Colts.—Hints about Breaking.

Break and drive colts by using the home-made "rig" often described as a "breaking-cart"—a stout pair of wheels and axle with shafts attached, running out behind eight feet or so according to the hight of the wheels. This is to prevent backing and rearing. In making this breaking-cart, it is best to have the shafts rather close, as the colt is more confined, and soon gives up the natural tendency to turn around. Drive colts barefoot until the feet show signs of wear and lameness, usually until they are five years old. If the aim is to make a trotter of him, and he is given speedy work, that alters the case somewhat, and the hard pounding that some roads give, with the danger arising from striking stones in such a way as to split the hoof, makes it necessary to shoe fast colts when they are undergoing training exercise.

In breaking and training colts single, it is best to do so without blinders. They become quickly accustomed to the appearance of a vehicle following them, which must be a terrific sight to a horse that has always been driven closely blinded, when by chance, having on a headstall with loose cheek-pieces, or by any other accident, he sees a top-wagon following close to his heels. Many a frightful runaway has come from this cause. Long cheek-pieces, when the horse is suddenly drawn up, are naturally thrown out from the head, and this lets the animal have a view perhaps for the first time what is behind him—and away he goes. Then, the harder the driver pulls, the plainer the horse sees the wagon. In buying a horse, make sure that he is not afraid of the vehicle behind him when in motion. It is easily done by walking at his side and lifting the back part of the blinder.

One of the most important things to teach a colt is to back and to stop backing at the word whoa! This should always be done at first on a gentle down grade. The backing of course must be done down the grade, which should not be steep enough to take the entire effort of backing off of the colt, but to lessen it essentially. As soon as the colt becomes a little accustomed to the cart, or even before he is put in shafts, he must learn what whoa! means, and under any and all circumstances to stop short when he hears it. Then when placed before the breaking cart, some severe "check" should be arranged to be applied at once. Several contrivances are in use. A hard jerk upon the bit is made to take the place of the check, but that makes the tender mouth sore and irritates the animal. Some colt-breakers use a strap rein with a ring in the end, passed over and attached to the head-stall, the end of the rein being run through the ring, which hangs at the right side of the head, and goes back to the hand of the driver. At the word, a sharp pull tightens the noose upon the colt's throat and throws up his head, stopping him at once. It plays loose immediately on being relaxed, and while it gives the colt a palpable hint, it does him no harm. The expectation of the "hint" will soon cause the colt to stop at the word, as if he were struck in the face. The habit thus acquired will last for life, provided the word is not improperly used, and he gets an idea that whoa! means "not quite so fast." Even a runaway horse, properly trained to stop at whoa! will often do so, and the habit is a sure safeguard against accidents, which can hardly be over-estimated.

Feeding and Care of Farm Animals.

PRIZE ARTICLE.—BY "A WESTERN FARMER."

Sheep.

Sheep are profitable if well cared for, but unprofitable when neglected. The middle-wooled sheep will give the best satisfaction to the general farmer. Warm, dry, clean sheds are essential. Allow no other stock to occupy them with the sheep. The feed-racks should be under cover. Feed good hay of any kind, shelled corn and oats mixed, and chopped roots for winter. Cold weather causes the wool to grow rapidly, and a liberal supply of food must be provided so that there will be no "starvation break" in the staple to reduce its value. There is only disaster and loss in short feeding at any time. Bright oat straw cut short, dampened and primed with oat-meal, corn-meal, or oil-cake meal, is very fair feed in the absence of good hay. A strong, sucking lamb, will rapidly reduce in flesh the fattest ewe, unless she is well supplied with the best and richest food. Grass is best, of course, but in its absence, roots cut and mixed with corn-meal, and plenty of good bright hay, will suffice.

Clover and mixed grasses make the best pasturage for sheep. With a hurdle fence, corners and patches of grass, green stuff, aftermath, etc., etc., can be profitably utilized, and the soil enriched. Supply the sheep with plenty of salt when at pasture. See that they never lack water. A trough ten or twelve feet long, twelve inches deep and wide, with a hinged cover having an opening at one end, will keep water clean. Scrub it out occasionally.

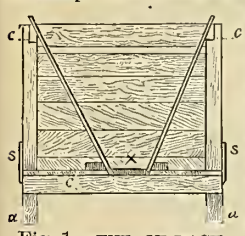


Fig. 1.—END OF RACK.

Lambs.

The period of gestation is one hundred and fifty-four days. With plenty of good shed-room and good feed, lambs may be dropped in April; otherwise May is the best month. See that lambs are properly suckled. The ewe's teats are often closed with a gluey substance, which should be forced out and the milk started. After once starting, the lamb will take care of the rest. It is sometimes found necessary to feed lambs by hand. Have a can made for the purpose shaped like a tea-pot, holding about a quart, and with a raised ring at the end of the spout to hold a nipple. The milk should be fresh and about as warm as it comes from the cow. Feed a little at a time about every three hours the first two or three days. After that three times a day will do. Keep the lamb warm and dry, and when the weather is warm let it run out. With good care, sheep will always be healthy. Be careful in changing from green to dry food, or from dry to green. It should be done gradually. A mixture of three ounces sulphur to one pound salt, kept in a dry place where the sheep can always get at it, is an excellent preventive of costiveness, colic and similar troubles among the members of the flock.

Sheep are always benefited by a change of pasture. If only one pasture is available, it would be best to divide it with a hurdle fence, and change from one division to the other, every two weeks. Figures 1 and 2 show the best feed rack for sheep and calves that we have seen. Figure 1 gives the end view, and figure 2 the side view. The rack is fourteen feet long; the posts *a*, *a*, are four by four inches, center-piece, *x*, is a two-inch plank; cross-braces and side-pieces *c*, are two by four inches. The bottom is of inch boards. Hay-rack pickets are three inches wide. The ends are boarded up as seen in figure 1. Six-inch boards, *s*, are nailed along the sides, making the feed-boxes five inches deep. The bottom is twelve inches above the ground. This rack is very strong, roomy and unexcelled for feeding hay, grain or cut feed. Figures 3 and 4 show the mode of constructing good, cheap hurdle fences. Figure 3 is a finished length; the lower piece is a twelve or fourteen-foot board, six inches wide. The middle bar is a strip two inches wide and one inch thick, on the top is a wire with very short barbs. The uprights are four-inch boards, sawed as shown at *a*. At *b* is a brace. The slot in the top receives the ends of the lengths of fence, and is ten inches above ground. They are sawed out of six-inch boards as shown at *c*, with very little waste. Figure 4 represents another fence. The lower bar is two by three inches; uprights, same as in figure 3, are let into it. It is supported on short legs one inch thick.

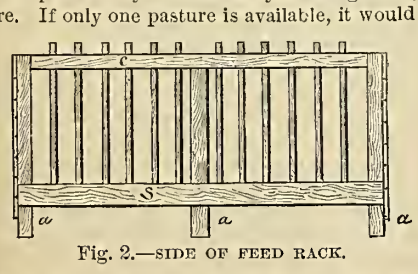


Fig. 2.—SIDE OF FEED RACK.

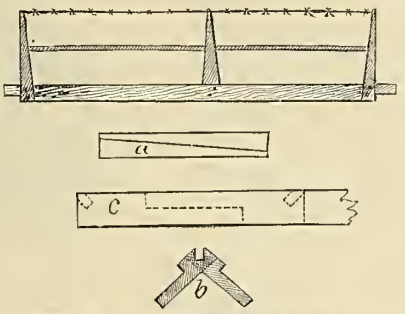
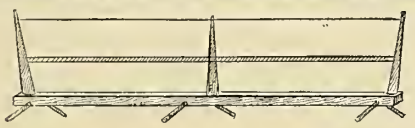


Fig. 3.—A SHEEP HURDLE FENCE.

Sheep should be carefully trimmed and tagged when sent to pasture. If their winter quarters are clean, they will not need much tagging. Lambs may be weaned when four to five months old. Keep them out of sight of their mothers and feed them well. The ewes will dry quicker if upon short feed a few days. A dose of buck-shot, administered with a gun, is the best physic for sheep-killing dogs. When a sheep dies from natural causes, as is frequently the case, do not charge it to the "dog account," as is too often the practice.


Fig. 4.—ANOTHER HURDLE.

A New Use for Peat Moss.

The Peat Moss, or Sphagnum, which abounds in bogs, whortleberry swamps, and morasses in the Northern States, is now utilized as an excellent article for bedding in stables, as well as for packing plants in commercial nurseries. In the olden time, almost the only use made of sphagnum was to calk the cider press, when the months for making cider came around. Straw was much plentier then than now, and there was not much demand for it in cities and villages. No one dreamed that the day would ever come when the worthless moss, which creeps unobserved over cold swamps and bogs, as they fill up with vegetable decay from their borders, would ever have any commercial value. That period has come, and the peat moss crop is henceforth to be added to the valuable resources of many a farm, and gives value to land, where ferns, brushes, and aquatic plants grow. The peat moss gathered, dried in the sun as thoroughly as we dry hay for the barn, may be baled like hay or straw for the general market, or stored for bedding for home use. It is claimed for the commercial article, that it is cheaper than and superior to straw, or any other bedding, on account of its spongy, elastic, absorbing, and disinfecting qualities. It absorbs nine times its own weight of moisture, retains the ammonia from the urine of the animals bedded with it, and is therefore exceedingly valuable as a manure. These claims may be a little exaggerated. We have used for years sun dried, salt marsh sods, cut in six or eight inch cubes for bedding, and thought them hard to beat. But these are only available for shore farmers. The peat moss is much more widely distributed, and is within reach of a multitude of farmers, either upon their own or their neighbor's premises.

We are far too penurious in the use of bedding or absorbents in the stable. It pays to stable horses, working oxen, and milch cows at night, the year round. The ordinary method of keeping cows in the open yard at night, or in the pasture, is wasteful, as one will discover by visiting the barn of a thrifty farmer who stables his cows and oxen, and uses dried peat or other absorbents, to be dropped into the barn cellar beneath when saturated. The accumulation of this sheltered fertilizer is very large in the course of the pasturing season, and its value is seen in the rank growth of the crops where it is applied. We welcome any good article of bedding, especially one so widely distributed and so easily procured as peat moss. In the districts where it grows, the experiment of using it cannot be very costly, and it may lead to valuable results. Even if it should fail at first to prove a commercial crop, it could hardly fail to have a large home market. It would certainly save straw, which has a ready sale at remunerative prices in the vicinity of large towns and cities, and within easy reach of sea-ports and river landings. The moss that grows upon the surface of the peat and the bog meadow, is more easily gathered than the peat and muck that lie underneath. It makes a cleaner and softer bed, keeps the cattle drier, and probably retains the ammonia as well or better. Experiment with peat moss. CONNECTICUT.

How Frogs Help Farmers.

Mr. C. M. Weed, of the Michigan Agricultural College, has recently examined the contents of the stomachs of eight common frogs (*Rana halecina*), and finds undoubted evidence of the usefulness of frogs as destroyers of insects injurious to farm and garden crops. The average quantities of various insects and other substances determined by the examinations are as follows: Insects, eighty per cent.; Spiders, five per cent.; Sow-bugs, one per cent., and the balance, vegetable matter of various kinds. Of the insects, over half are known to be injurious, and one-quarter are on the doubtful list. Much of the vegetable matter, (leaves, etc.,) was probably swallowed accidentally, along with the insects and spiders. Nearly all the stomachs contained grasshoppers, and in one they made up seventy-six per cent of the contents. The Carabid beetles formed a large part of the food taken by some of the frogs. The Strawberry Crown Girdler was well represented, as also were several other pests of the garden. Much has been said for and against the frogs, the robin, and the crow, but there is no evidence of usefulness more positive than the finding of large numbers of injurious insects in the stomachs of these creatures. Under the dissecting knife, the frog is sure to have its right to live vindicated. By their good works we shall know them, and learn to protect our croaking friends, as well as their relatives, the toads.

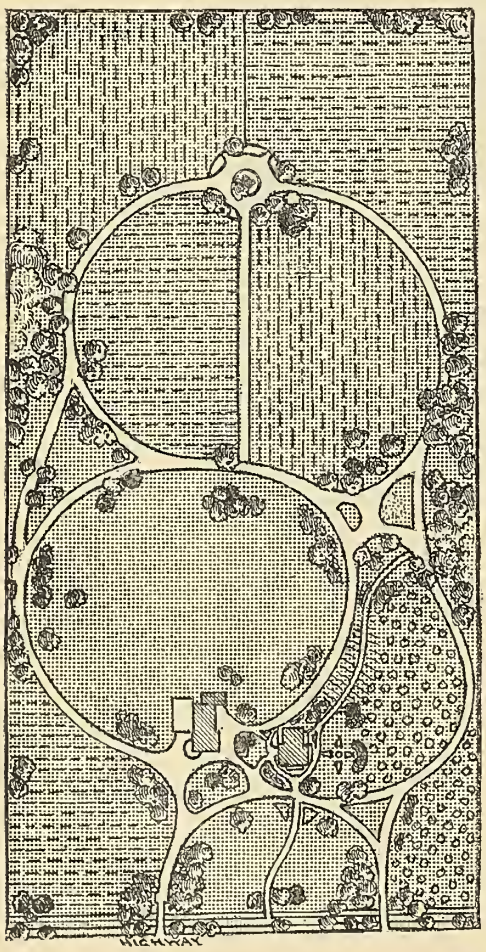
Apples Stored in Pits.

Apples may be stored in pits like potatoes, and if kept dry and frost-proof, will come out in fine condition in the spring. It is a fact, however, that apples thus stored, decay more rapidly when removed from the pits, than similar fruit stored in a dry house cellar with an even temperature, only a few degrees above the freezing point. When apples are kept in pits for the spring market, they should be shipped as soon as possible after being removed, and not to a very distant city. Pitted apples will need frequent assorting when exposed for sale. The apple crop this year is heavy, and only the best fruit should be stored in any manner. Let it be remembered that fruit keeps best in a dry, cool, and dark room. Pits are inexpensive, and if well made, not large, the fruit separated from the earth by straw, and when opened, quickly marketed, there need be no great loss of fruit.

Beautifying the Farm.

There are many owners of farms, especially those of moderate size, who would gladly gratify their tastes in beautifying the estates, did they know that this could be done at a small expense, and at the same time not diminish the usefulness of the farms. In this country one rarely sees the *ferme orné* (the ornamental farm) so common in France, which shows that a large share of garden beauty need not conflict with the strictest farm economy. There are in this country many farms of so much natural beauty, that it only needs to make the best use of the materials already on the ground, and to abolish the rectangular rail fences, those prolific nurseries of weeds, to convert them into scenes of rural beauty. Aside from the gratification such a change would afford the farmer and his neighbors, its greatly increased value, should the place be sold, would warrant a much larger outlay than need be made in effecting the improvement. To show what may be done in this direction, we give Mr. Elias A. Long's plan for the improvement of a small farm, concerning which, he writes us:

As shown there are six fields, besides orchards, groves, kitchen garden, and grass plats, adorned with trees, shrubs, flowers, etc. The house, nearest to the street, and the barn a little further back to the left, are reached by drive-ways which lead gracefully to the main buildings, and throughout the farm. The grass plats in front of the house and barn, or any other building, may be kept closely clipped with the lawn mower, or else—especially the larger ones—they may be mown three or four times during the season for feeding to live stock. In such a plan the fields may be surrounded by hedges, or sometimes advantageously by wire fences. By running a wire fence



AN ORNAMENTAL FARM.

Drawn and Engraved for the American Agriculturist.

around the plat immediately back of the barn, and using it as a permanent pasture, it will present from the street and house the appearance of an extension of the ornamental grounds, because the grass being kept closely pastured, will look as well as if shorn with the lawn mower, while the fence may be so inconspicuous as hardly to be seen a short distance off. By running a lane from the pasture down through the center of the next section beyond, to the farm circle, located in the most distant point of the drive, live stock can easily be driven to any lot of the farm if desired. In the plan, a walk leads from the house to the right, past a flower bed in the lawn, to the kitchen garden, thence near the drive, with shrubs and hardy flowers in places at the side, to the grove on the right. Here may be an arbor to afford shelter, both from sun and rain. Another arbor occupies a grass plat in the center of the rear circle. Between the drive and fence of this circle, there are five spaces of grass that may have beds cut in them to be filled with shrubs and plants. A farm of any size, or a fruit and vegetable garden, laid out on some such plan, may prove on this account in itself a great source of pleasure to the residents of the place, as well as to persons who may be visitors.

Prevent Chicken Cholera.

We find that our flock of thirty Plymouth Rock fowls, confined in a small yard, eat eagerly, and thrive upon, any chopped green food offered them. When the early lettuce was gone, we by way of experiment gave them chopped sunflower leaves, which were greedily devoured. We are convinced that cholera among fowls—as among men—may often be prevented by cleanliness, especially in drinking water. Few fowls confined in chicken yards, or even running at large, have access to perfectly pure water, or as much as they wish. The water left for them in vessels is soon soiled by their feet and excrement, and becomes a reasonable source of disease. We have kept large sardine boxes, which are about deep enough for fowls' convenience, and a wooden trough in our little chicken yard. These are emptied, rinsed, and refilled with fresh water twice a day—oftener if very warm. We have not lost a chicken by cholera, though our neighbors just across the street, and throughout the town, have lost a great many with that disease. Our care with the drinking water has been rewarded by plump, clean, young broilers.

Dryness in the Fruit House.

After a low and even temperature is secured, the other essentials in preserving fruit are: darkness; an air-tight room, to retain the carbonic acid given off by the fruit, and a dry atmosphere. As stated elsewhere (p. 423), fruit in ripening gives off both carbonic acid and water, or moisture. The carbonic acid, by excluding the oxygen of the air, aids in preserving the fruit. Moisture is undesirable, as it hastens decay. The only effective method of removing it is by exposing in the room some substance that will absorb it. The French use Chloride of Calcium, which is a very different substance from Chloride of Lime. This salt has such an avidity for moisture, that it takes it from the air of the room and becomes liquified. The objection to this is its expense. An American experimenter has found a substitute in the "bittern," or waste material of the salt works, which is thrown away. This is mainly a very impure chloride of calcium, and answers the purpose. The bittern, in a large iron pan, is exposed in the fruit room. When it has become liquified by the moisture absorbed, the pan is set over a fire and the salt dried, by driving off the water it has absorbed, when it is again ready for use. This process may be repeated indefinitely.

The Streaked Cottonwood-Beetle.

The Cottonwood trees (*Populus monilifera*), through the west and south, have been badly infested with leaf-eating grubs during the present season, and in answer to inquiries concerning the pest, we present the accompanying engravings. The fat brown grubs emit a pungent fluid, from



Fig. 1.—BRANCH OF COTTONWOOD.—*Engraved for the American Agriculturist.*

tuberculous spines situated back of the dark colored head. These voracious larvæ soon eat out the soft part of the Cottonwood leaves, leaving only a network of fibres. The pupa, or inactive, state following the grub condition is passed upon the leaves. The mature beetle is black and yellow, variously mixed with three interrupted lines of black or bluish spots upon the wing-covers. The beetles and grubs may be destroyed by spraying the infested trees with a mixture of Paris Green or London Purple and water. Figure 1 represents a branch of Cottonwood, with eggs at *a*, enlarged at *b*; newly hatched grubs at *c*, and enlarged ones at



Fig. 2.

d, *d*, *d*. A pupa is at *e*. Figure 2 shows the beetle at *a*, with a hair line at its right indicating the natural length. At *b*, *c*, *d*, and *e*, are half-beetles, showing the variations in the color of this insect.

"Book Farmers."

All intelligent, successful farmers are book farmers—just as all good lawyers and doctors are book lawyers and book doctors. It is monstrous nonsense to deride a farmer because he reads agricultural books and agricultural papers. He may be a great reader and a very poor farmer. He may be a lazy man, that prefers to sit down rather than to hold the plow, or to read rather than to think. But that is not the fault of the books, or the papers. He might do something worse.

We hazard nothing in saying that the world never had better agricultural papers than to-day—and never were papers more needed. The farmer who can read and does not take an agricultural paper, makes a great mistake. No matter how much experience he may have had, or how much he knows, he will be glad to see what others are doing, and to hear what they have to say. He is not obliged to adopt their methods. Many silly things get into some of the papers. They raise a smile, but do no harm. The wise farmer will sift out the wheat from the chaff. He will find suggestions that are valuable. Nothing is easier than to forget. We know many things that escape our memory, and a good paper recalls them to our mind.

We might make higher claims, but leave that to the intelligence and candor of the farmers. A good agricultural paper is worth ten times what it costs, and every intelligent farmer knows this. J. H.

Walks and Talks on the Farm.

New Series.—No. 4.

JOSEPH HARRIS, M. S.

"I am undecided whether to pack my apples in the small or large barrels. I have quite a lot of the small barrels on hand."—"If you do not want to use them," said the Deacon, "I will take them—so that need not stand in the way."—The fact is, the Deacon is getting tired of this discussion.

"I have just returned from Buffalo, Deacon," I said, "and feel proud of the American farmers. Farmer life is supposed to be quiet and slow. But I could not help being struck with the intense activity, energy and enterprise everywhere manifested. The railroads, with their immense traffic, show what the farmers have done, and are now doing. There are four trunk railroad lines converging towards Buffalo, and all look to the farmers of the West for support, and in the meantime distributing a good deal of money all along the various routes. We are disposed to grumble at railroad managers, and very justly, but they have done, and are doing, great things for us. India is going to build railroads, and will undoubtedly yet be a great wheat growing country; but we have the railroads ready built and equipped, and able and anxious to carry all the wheat we can produce. We have got the start in the race, and shall hold our own.

"Never mind all that," said the Deacon, "tell us what you saw."—"What I saw," said I, "is of little consequence. It is the impression left on the mind, the new resolutions one makes, and the hopes engendered that are of consequence. A man who stays at home on his farm as much as I do, is apt to get discouraged. He needs to see what others are doing. I came home and started the plows. That is the effect it had on me. I saw one man plowing a clover sod with three horses. It had been cut for hay, and he was turning under a nice growth of clover, intending, no doubt, to sow wheat. This was the only sod land I saw being plowed. Occasionally I saw a summer fallow, but, as a rule, three-fourths of all the wheat is evidently grown after barley or oats. Barley is preferred, because it is harvested earlier than oats, and we have a better chance to get the soil into good condition before sowing the wheat. Three-horse plows were the rule. I saw but one two-horse plow at work, and I felt sorry for the horses and the man. The three-horse teams went joyfully along, doing good work with ease. It was a pleasure to look at them. Many were drawing out manure, and plowing it under for wheat. They will doubtless use phosphates also. I saw many large flocks of sheep, principally Merinos and their grades. If they do not bring in much money for wool, they cost comparatively little to keep them. They are the scavengers of the farm. One flock was in a summer fallow, another in a rough, bushy and weedy pasture. Cows, of which many are kept to supply Rochester and Buffalo with milk, receive better treatment. Near the villages we see some Jerseys and their grades, also patches of corn-fodder. Here is a team scraping out a ditch on low land. I have done this kind of work myself, but gave it up. Repeated plowings on the side, turning the furrows from the ditch, followed with a bright, long-handled shovel, and a stout Irishman who knows how to use it, does the work cheaper, and what is more important, you are likely to go deeper and get better drainage. On the next farm is a piece of basket willows, and then we strike higher, rolling land, with large wheat-fields, thrifty orchards, good roads, three-horse plows, steam thrashing machines, comfortable houses, and a mowing machine cutting weeds on some low land, lying between the upper portions of the farm. I mentally took my hat off to the man. At the next station I saw a farmer made happy by receiving some finger guards and sections for his reaper. The telegraph and railroads are wonderful institutions, and farmers are beginning to learn how to use them. A young farmer cannot too soon form the habit of sending for things rather than going himself. There are men who would have thought it necessary to go to the shop themselves, to have got these repairs."

"That is so," said the Deacon, "but how are you going to teach them?"—"Nothing is easier," said I, "let a boy sit down and write a letter to a seedsman for a catalogue, and then order a few seeds. If he sees a book advertised that he wants, let him send for it. If he gets bit once or twice, as he will be very apt to, he will learn to discriminate."

The next thing we want is the steam plow. It will surely come—and when it does come, we shall wonder how we ever got along without it. It is not ten years since a steam thrashing machine was a rare thing, and the Deacon and others shook their wise heads, and talked about fires, insurance, and explosions. Now we have steam thrashers by the score, and I do not know of an old-fashioned horse-power machine in use. The Deacon is thrashing with a steamer to-day, and a traction engine at that, with all the modern improvements, and is as happy as a clam. He would laugh at the idea of hitching his well-cared for teams to a thrashing machine. The rapid introduction of the steam thrashers is proof to my mind, that when it is once proved that plowing can be done by steam, there will be plenty of people to take hold of the business. The farmers will not own the steam plow any more than they own the steam thrashers. They will gladly have the work done by the acre—just as many of us now have our wheat, and barley, and oats cut and bound by a reaper and binder, and our grain thrashed by the bushel. One of my neighbors has two or three binders, and two or three steam thrashers, and his boys go around cutting and thrashing grain, making quite a business of it. A few days ago he was building a stone wall, and wanted to haul some large stones for the bottom tier. We usually hitch three horses to a stone-boat, and occasionally four. My neighbor hitched his traction engine to the boat, and it walked off with all the stones the boys could pile on. Steam plows have been used extensively in England for many years. Their use here has been hindered by the high rate of interest on money, and the comparatively high price of coal. In a section where corn is used for fuel, there is no chance for the steam engine. Where hay and oats are dear and coal cheap, there we want the steam plow. If we keep all the horses we need to do the work promptly and thoroughly, there are times when there will be little for them to do. But the horses must be fed all the time. The iron horse eats only when he is at work. If he does not cost too much, and the food he eats is as cheap as it ought to be, he is just the horse that the American farmer needs. Our seasons are short, and we have a good deal of hard plowing to be done just at a time when there is plenty of other work for the horses. On my own farm, for instance, I have fifty acres of land that I would like to sow to wheat this fall. During the dry, hot weather in August, our strongest and best wheat land, especially if we have just harvested a crop of barley or oats, is hard to plow. The poor horses come home at noon and night covered with sweat and dust, and tormented with flies. If I had a good steam plow, I could find plenty of other work for the horses to do, and if I could not, they would enjoy a few days vacation in a good pasture. The steam plow, or cultivator, would break up this hard, dry, strong wheat land, and the scorching sun would kill the weeds, and we could soon get it into prime order for winter wheat. We shall soon have plenty of young men able to manage the engines. Mark my word, steam plows will be as common as steam thrashers, as soon as railroad directors and coal companies have had a little common sense hammered into them.

The Fair of the Royal Agricultural Society of England was held this year at Shrewsbury, in Shropshire. I wanted to be there, but could not arrange it. The Fair was held there in 1845, and I attended it. How well I recollect several features of the Show, but especially the plowing match, when a boy with a gray team, without lines, won the prize—or ought to have won it, I forget which! My impression is that he did the best work in the field, but was a minute or two behind time, and so lost the prize. I did not know the boy, but have thought of him a great many times since. His furrows were as straight as an arrow, and turned over with mechanical accuracy. I wonder if farmers' boys take as much interest in such things now as I did then. If so, we ought to have more plowing matches and more trials of implements. I have been to a great many fairs since then, have exhibited occasionally, and it has seemed to me as I have watched the people pass, looking tired and listless, that they took little interest in the exhibition. But why should I think so? I presume, at the Royal Fair in 1845, I passed from pen to pen, and stand to stand, looking at the stock and the implements as silently and listlessly as any farmer's boy of to-day, and yet I know that the impressions then made have remained with me ever since. And I have no doubt that the fairs of to-day do just as much good as at any previous time. In 1845, the fair ground embraced twelve acres, this year seventy acres. As I look back, it seems to me there was a grand display of implements and machines. The records show there were nine hundred and forty-two implements exhibited in 1845, and five thousand two hundred and forty-two in 1884, and so the boys of to-day have more to see than their fathers."—"Yes," said the Deacon, "and more to learn."

"Well, Deacon," said I, "how many bushels of wheat did you get?"—"Two hundred and ninety-seven from ten acres. I sowed twenty bushels, and it shelled out on the ground as much as I sowed. Clawson wheat if not cut just at the right time, shells badly. But I did not expect over two hundred and twenty-five bushels, and so I have no reason to complain."—"I should say not," said the Doctor, "especially as it was after oats. In a good season, it is quite clear that our land will produce as much wheat as when the country was new."—"This would seem to be the case," said I, "provided the land is drained, well tilled, and you drill in one hundred and fifty or two hundred pounds of superphosphate per acre. How long this will last remains to be seen. I think that sooner or later we shall have to keep more stock and make more manure."

"Yes," said the Doctor, "and raise something besides wheat. The whole world seems to have rushed into wheat growing. It would seem that wheat and wool can be grown on cheap land and sent thousands of miles to market. The yield per acre is small, and the profits moderate, but it is a good thing to have cheap wool and cheap bread."

"I am not so sure about that," said the Deacon, "when the farmer suffers, everybody suffers with him."—"I do not see much suffering," said the Doctor, "notwithstanding the low price of wheat, farmers are unusually healthy, hopeful, and happy. The sober, industrious, and economical farmer has nothing to fear except bad seasons, and this season has been very favorable. Last year was the worst season in many years, and many farmers suffered more than is generally known."—"True," said I, "there is no lack of anxiety on a farm at all times, but the year 1883 was one that sorely tried our courage and faith. We had nothing to sell. We have now good crops, and even with the low price of wheat, we are not forgetful of the past, grateful for the present, and hopeful for the future."

"We have plenty of straw and hay" said the Deacon, "and it will be a good time to fatten sheep this winter."—"I think it will," said I, "but John Johnston used to say that the year he made the most money in fattening sheep was when oats and corn were high. Farmers would not feed grain to sheep when it brought a good price in market, and the result was that few sheep were fattened in winter, and the few who had fat sheep the next spring got a big price for them. But since then, the times have changed, the low freight charges make corn, and mill-feed, and cotton-seed cake, nearly as cheap here as at the West. This is one point to be considered. Another is, that the price of good mutton is less variable than formerly.

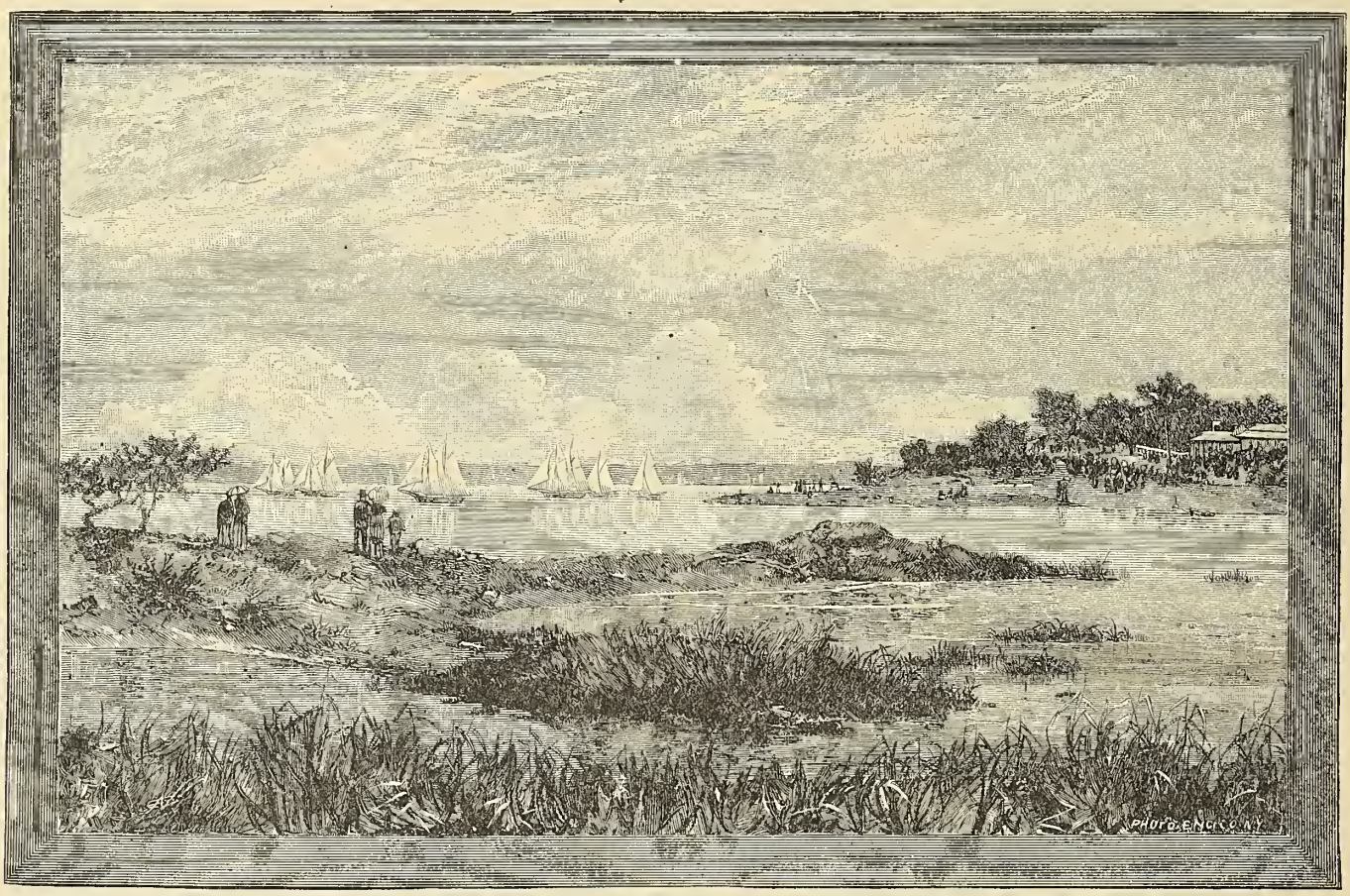
Mr. Johnston and others who fattened sheep in winter, made their money by buying the sheep cheap in the fall, and selling them at considerable advance per pound in the spring. I imagine there are few years when this could not have been done. Charley," said I, "take down any two consecutive volumes of the *American Agriculturist*, and let us see what has been. For, as a rule, what has been, will be. Never mind what year, pick it out at random."—"Well," said he, "here is Volume XVIII, 1859."—"Very well," said I, "now look at the New York Market Report in the October number, and give us the price of sheep." Charley read as follows: "The markets have been glutted, and farmers wishing to buy stock for winter feeding have been more fortunate than those having to sell. In such an overstocked market it is impossible to sell by weight. Prices ranged from one dollar to two dollars per head for poor stock; two dollars and a half to four dollars for good sheep. A few large fat ones bring five dollars to seven dollars each. These prices are about equivalent to three and a half to four and a half cents per pound live weight."—"Now," said I, "get Volume XIX, 1860, and look at the Market Report in the March number."—Charley read as follows: "Sheep and lambs are now in short supply, and are worth five and a half to six cents per pound, live weight, for fair to good sheep, and six and a half to seven and a half cents for very fat premium mutton."

"It is clear," said the Doctor, "that the farmer who bought sheep in September or October that year, and sold them the next spring, made money."—"Yes," said I, "if he bought the right kind of sheep and took good care of them, and fed well, he made money and manure at the same time—which is what we want to do."—"I suppose," said the Deacon, "you mean by the right kind of sheep, some of the English breeds of mutton sheep."—"No," said I, "not necessarily. Let me tell you, Deacon, you cannot do a better thing than to fatten enough sheep this winter to eat up all your straw, bean-fodder, corn-stalks, and clover hay that you do not need for your horses and cows, and give the sheep at the same time at least a pound of cotton-seed or linseed meal per head per day. You would have a large pile of rich manure in the yards in the spring, and you could then beat me raising cabbages, cauliflowers, celery, turnips, beets, onions, carrots, salsify, cucumbers, melons, and squashes."—"I can beat you anyway," said the Deacon, "though I do need more manure."

The Deacon rents some of his low, mucky land to some Germans, who raise cabbages, Swede turnips, etc., on shares. He made a good thing out of it last year. The cabbages and turnips are drawn to our local railroad station, and sold to a dealer.

The Stage Coach in New York City.

When the railroad car took the place of the slow stage-coach, it deprived travel of most of its pleasures. One sees but little of the country as he is whirled rapidly through it amid noise and dust. There is no way in which scenery can be so well enjoyed, as from an outside seat of a stage-coach. The moderate rate of speed allows all the beauties of the scene to be appreciated, and the changes of the road present an ever-varying panorama. Then the stage-coach allowed of social enjoyment, and chat and stories made the time pass pleasantly. What a contrast between the tavern, where the stage-passengers stopped for dinner, and the present railway station with its "five minutes for refreshments!" There is so much that is pleasant and enjoyable in travel by stage, that wealthy gentlemen in New York City and vicinity not long ago formed a Coaching Club, each member of which has a "coach and four." There are now many members of the club. Each has a coach made in the best possible style. The body of each, and the running gear is painted in a different style from the others. The horses are carefully selected, and have the most complete harness and trappings. The coaches have seats for six upon the roof, besides a place for the "guard," who with his horn announces the arrival of the coach. The driver is usually the owner of the coach, and there is no little friendly rivalry among the members over their skill in "handling the ribbons." A parade of the Coaching Club is something well worth seeing, and the club makes occasional excursions to more or less distant points. On one occasion its members, or a part of them, drove to Philadelphia and back, by the stage-route followed before the days of railroads. One member of the club is so enthusiastic a coachman, that he runs a daily coach between one of the hotels of this City and a point in the suburbs. He takes passengers at a round price, and thus allows those who are not members of the club, to enjoy the pleasures of this mode of travelling. So popular is the Tally-ho Coach, that places are engaged many days ahead. The passenger by the coach leaves the City by that beautiful gateway, Central Park, and sees the City melt gradually into the country. His road takes him past beautiful villas, as well as primitive farm houses. His senses are soon saluted by the refreshing sea air, and he arrives at his destination, prepared to do justice to the bountiful dinner that awaits him. His destination is Pelham Bay, one of the most charming spots upon Long Island Sound, an engraving of which we have made from a drawing furnished us by the Park Commissioners. He here exchanges the varying scenes and sights of the road for one of tranquil beauty. The blue waters of the Sound stretch out in front of him, and the many sailing craft go lazily by, their quiet being in strange contrast to the fussy little steamer that occasionally passes. After a few hours of rest at Pelham Bay, the homeward journey is commenced, and the passenger enjoys the same scenes in the light of the declining sun, and reaches the starting point just as gas-lights and electric lamps are replacing the daylight, refreshed by the novel mode of travel, and the change of air and scene. "But," some may say, "it is very expensive."—So it is, but unlike many of the amusements of the wealthy, every dollar expended by the Coaching Club helps some one. The coach maker, the painter, the harness maker, and many other trades are benefited, and even the farmer, who breeds stage horses, has their value increased by what some regard as the extravagance of the Coaching Club.



PELHAM BAY.—END OF THE STAGE ROUTE.

Engraved for the American Agriculturist.

Characteristic Heads of Sheep.

A sheep's head, after life is extinct, is pure offal. It is almost good for nothing. Even the horns are nearly valueless—usually absolutely so. A half-starved dog will hardly look at a sheep's head, and chickens will pick off only a few shreds of flesh. The tongue is, however, sometimes pickled, and the brain made use of by some deft cooks. The only thought that we know of that has ever been given to sheep's heads, has been to reduce their size, eliminate horns, and encourage the growth of a few locks of wool upon spots where it is obviously an inconvenience to the animal, unless, indeed, it may serve as a cushion in butting. It is therefore not surprising that we find the heads of different breeds to vary so characteristically, simply because they have been let alone, and Nature has had her own way with them. This fact is shown most strikingly in the spirited sketches of heads which we herewith present. Nothing can be more woolly than the Merinos, or more meaty than the Long-wool heads, when named in connection with what we know of the respective breeds. As might be supposed, however, the Merino rams are pugnacious. Well-armed they certainly are, and they make good use of their heads. The horns are useful in this respect, they not only give great additional weight to the blow of the head, but defend it and the ears from the glancing blows, and enable it the better to stand the "shock of battle." The weaponless Long-wools are much more pacific in their nature, and though they can deal heavy blows with their bare polls, they are not often pugnacious in their dispositions. They incline to take life easily. The sweets of indolence are their joy, and in their resting time they lay on the flesh and fat for which we value these animals so highly.



HEADS OF WOOL-FACED SHEEP—RAM AND EWE.

Management of Sheep in Winter.

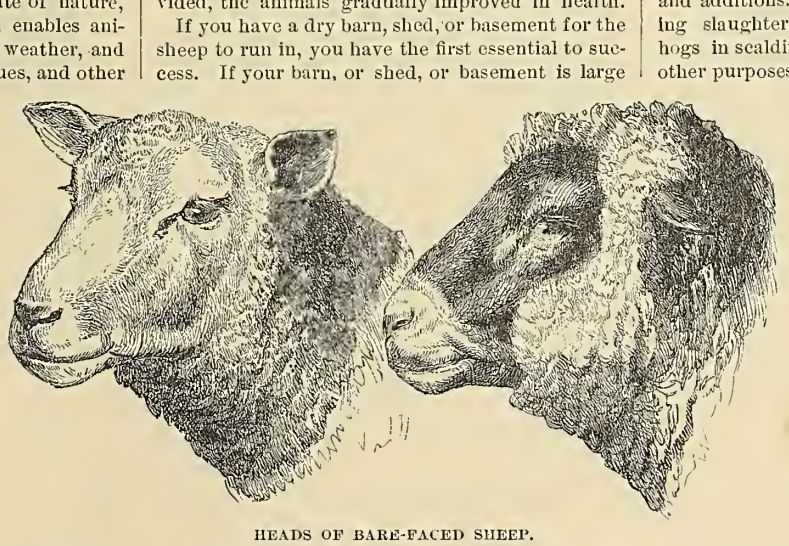
JOSEPH HARRIS.

To winter sheep successfully and economically, it is desirable to have them in good, thrifty condition before winter sets in. In a state of nature, the luxuriant herbage in the autumn enables animals to grow strong during the mild weather, and to store upon the kidneys and intestines, and other parts of the body a quantity of surplus tallow that can be used to eke out the scanty supply of food during the cold and stormy weather of winter. It is a wonderful provision of Nature. Not infrequently during severe snow-storms, sheep are as dependent on this stored up fat, as bees on their stored up honey.

If man interferes with this arrangement of Nature, he must work in accordance with Nature's laws. If he expects his sheep to thrive on straw during winter, he should see to it that they have good pasture in the summer and autumn. If he confines them to overstocked pastures, he should remember that they cannot store up surplus fat, and that if he would carry them comfortably through the winter, he must provide a liberal supply of food before winter sets in.

Shepherds, like poets, are born, not made. You may find a dozen men who can be trusted to take care of horses, cows, or pigs, to one who is fit to be entrusted with the management of sheep. Why, we do not know. All the great sheep-herders of the world have given much of their own time and labor to the care and supervision of their flocks. We have not space here to go into details, and in fact it is not necessary, as these vary greatly, according to circumstances. Much must be left to the common sense and experience of the shepherd. If any of our readers are going to keep sheep this winter, and have had little experience, we would advise them to consult some good farmer in the neighborhood, and in addition to this, the following hints may be useful: Sheep must have dry quarters. Nothing is so injurious as damp, ill-ventilated cellars, barns, or sheds. Do not think you can make such places warm and dry and comfortable by the liberal use of straw for bedding. This only makes the matter worse. There is nothing a sheep dislikes more than a fermenting manure pile. To compel a flock of breeding ewes to lie on a mass of damp straw and manure several inches deep, is almost certain to be followed by a weak, puny, sickly crop of lambs. We once knew a valuable flock of South-downs that has entirely disappeared. Goitre destroyed the lambs. We knew another large flock of Long-wool sheep that suffered severely in the same way. In the former case the sheep were shut up in a small shed and yard. The rain from the roof of the shed ran into the yard. Straw was thrown in from time to time, and the poor sheep were compelled either to stay in the shed or stand on this mass of wet straw. In the other case the sheep had damp sheds and cellars to sleep in, but as they had the run of a large yard, the results were not so disastrous. Many lambs died of goitre and infantile pneumonia, but as soon as dry quarters were provided, the animals gradually improved in health.

If you have a dry barn, shed, or basement for the sheep to run in, you have the first essential to success. If your barn, or shed, or basement is large enough not only for the sheep to sleep in, but also to feed in, so that they never need go into the rain, so much the better. Breeders of fine-wool sheep would say that this is absolutely necessary. Breeders of English sheep admit the advantage but not the necessity. We know very healthy flocks that are fed all winter out of doors, simply having a barn floor and shed to run in at their pleasure. In dry weather the sheep prefer to sleep out of doors, especially if the ground is frozen, and they have a little clean straw to lie on. They do not like mud or wet, dirty straw.



HEADS OF BARE-FACED SHEEP.

Bedding the sheep is an important matter that should have daily attention. The less straw you can use, and the sheep yet have a clean bed to lie on, the better. When sheep are fed straw, the true plan is to attend to the bedding every time you feed. Put plenty of straw in the racks, and let the sheep pick out the best of it. Then before the next feeding, go over the entire surface of the sleeping apartment, and stir up the straw that is trodden down, shaking the manure to the bottom. Any straw that is pulled out of the racks and trodden under foot, should be removed and scattered about where needed. Then take out all the straw from the racks, and spread it lightly and evenly over the sleeping apartment. If the racks are out of doors, it will be necessary in wet weather to vary this plan. Fresh straw will occasionally have to be used for bedding the sleeping apartment, and the damp straw from the racks can be spread about the open yard. Our rule is to salt the sheep once a week. It would be better possibly to have lumps of rock salt placed under cover, where the sheep could lick them at their pleasure. Give water regularly twice or three times a day. Let it be fresh and free from snow and ice. We have all observed how eagerly sheep will drink running water as it flows in the trough fresh from the pump. The temperature of such water as it comes from the well is about fifty-five degrees. After it has stood a little while in a frozen tub, with more or less ice and snow, it is reduced nearly to thirty-two degrees. The heat lost, especially in stormy weather, is worth saving. It is during storms that the skill of the shepherd manifests itself, and he will be glad that he has provided dry quarters for his flock. If his buildings are not all provided with cave troughs, and proper arrangements made to carry off the surplus water, he will resolve that another winter will not find him in such a sad and helpless condition.

A Convenient Derrick.

From a communication sent us by a Western Farmer, we condense the following, with changes and additions. A convenient "derrick" for raising slaughtered animals, for suspending heavy hogs in scalding, dressing beeves, and for sundry other purposes, can be cheaply and quickly made thus: Take three scantlings two by six inches, and fourteen feet long, or any other desired length and strength. Round poles will answer, by hewing flat on two sides, a small portion of the upper ends. Bore corresponding holes in the top of each, and insert a strong iron bolt, with large head on one end, and large nut and screw on the other. Let the bolt fit loosely to allow a little play. These pieces can fold together for storage, and be raised to any desired hight short of perpendicular. Bore a series of small holes along the upper sides of two poles, for movable iron pins, or larger ones for wooden pins. These may be fastened in, or better two loose pins for moving to higher or lower holes. By placing the feet of these two poles against firmly driven stakes, and drawing the third and rear pole inward, the center will be elevated with considerable force, the power required decreasing as the timbers approach a perpendicular, when a beef carcass, for instance, is nearly lifted from the ground, and hangs more heavily. If desired or necessary, horse-power can be applied by using a rope with a clevis or otherwise, attaching it to a double-tree or to a whiffle-tree. A single horse will be sufficient for raising a large carcass by means of this tripod derrick.

A Florida Barn.

In a semi-tropical climate, the out-buildings are made as open as possible for free ventilation. The

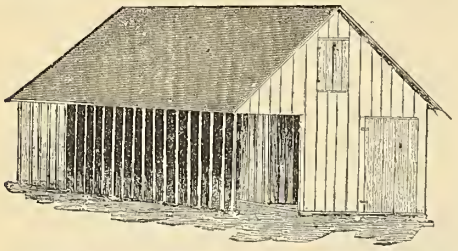


Fig. 2.—EXTERIOR OF A FLORIDA BARN.

barn shown in the engravings, is suited to the farmers of Florida and other Southern States. The ends of the barn are boarded up close, to prevent rain from beating in, but the sides and the partition between the shed and main floor are made of three-inch slats, with one inch space between, admitting plenty of air and light. A door leads from the shed into the stable; the latter is divided into two stalls, or left in one. At the South, an earth floor for stable is usually preferred to plank. Figure 1 shows the exterior of the building, and figure 2 gives the ground plan.

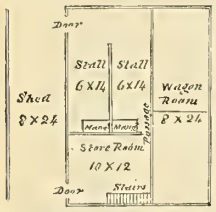


Fig. 2.—GROUND PLAN.

Proper Testing of Butter Cows.

Great stress is laid upon the amount of butter a cow will make in a trial of seven days or a month. The milking, weighing of the milk, the salting and working of the butter are under supervision, as if the quantity and quality of the butter, decided the profitableness of the cow, and the price she ought to bring in the market. We have many registered cows that produce fourteen pounds of butter in a week, and a few go up into the twenties. A very few are stated to have produced twenty-five pounds in a week. It is thought to be within the range of probability that a cow will yet make nine hundred pounds of butter in a year. These large figures have set the old heads upon the farm to serious thinking, which is a very good thing, and started some doubts, which is better. They begin to question, whether fourteen pounds of butter in a week on selected rations, in addition to grass, pays any better than seven or eight pounds on grass alone. They want a cow that will make the most butter upon a given value of food. It is the exception rather than the rule in the record of these large yields of butter, that we have any fair statement of the rations or the result of these large yields upon the condition of the cow. They wish to know what a pound of the tested butter yield costs. There is a demand for a trial of these cows upon grass alone. That would not fully decide the comparative merits of cows. One animal might weigh a thousand pounds, and another but five hundred, and of course it would take a much larger portion of the rations to keep up the condition of the former than of the latter. One cow might have an accumulation of fat, while the other was in poor condition. There might be as much difference in the condition of the pastures as in the flesh of the cows, or if the grass was equally lush, pasture might be worth twenty-five cents a week in a rural district, and a dollar a week near a city. The cry for a trial "on grass alone," will not give us the light we want. We desire to know just what it costs Mr. Bonanza to get a hundred pounds of butter out of his four thousand dollar cow, "Magnificat." There is the interest on the investment during the butter trial—the cost of pasturage in his vicinity, the quantity of the additional rations, and their value, and finally the cost of manufacture and marketing the butter. "Magnificat" is a splendid looking animal, and Mr. Bonanza may find pleasure and profit, from an æsthetic point of view, in owning her. It pays to buy pictures. But if it costs fifty one cents to get a pound of butter, which will sell for only fifty cents, the old heads are not able to see where the profit comes in. If there is a profit it can be shown by the record, and it ought to be. No better card can be made for Mr. Bonanza's registered herd, than to show that he can get more butter out of a hundred dollars' worth of rations, than it is possible to get out of any other breed or their grades on the same value of fodder. But what of the profit from the sale of calves and registered stock? It is very good now, but what will it be, if they are not proved by satisfactory tests to be the best machines for extracting butter from fodder?

Raising Onion Seed.

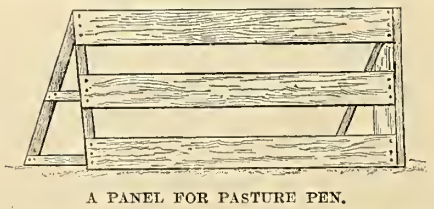
For two years onion seed has been very cheap. If we may judge from past experience it will sooner or later be high again. It is a good time for those who have had the experience in raising seed, and wish to engage in the business, to set out a few bushels of onions. Let them select the very best onions, and especially avoid all those with thick necks. It does not pay to grow your onion seed unless you grow the very best. You can buy plenty of poor seed—and lose money by it.

Onions for seed can be set out in the autumn or in the spring. If proper precautions are taken, autumn is the better time. The land must be moderately rich, and thoroughly worked. Onion roots run down deep into the subsoil, and it is therefore essential that the sub soil should be free from stagnant water. Low, mucky land that will produce good crops of onions, will not always produce onion seed. Dry upland is better and more certain—or rather it is less uncertain, for at best, onion seed growing is rather an uncertain business. You may get a good crop of seed and a good price, and the crop may bring you in one thousand dollars per acre—or it may all "blast." We mark out the rows three and a half feet apart. Make a furrow three or four inches deep. Set out the onions in the rows so thick that they will almost touch each other, and cover carefully and well two or three inches deep. If heavy rains wash the soil away from the onions, they must be covered again before winter sets it. If they cannot be well covered with earth, draw out some manure or straw, and spread it two or three inches thick over the rows, or over the whole surface of the land. There is no danger of the onions being injured by the frost, provided they are well covered, but if this precaution is not taken, and we have little snow for a cover, many of the onions will be killed.

The same remarks apply to onion sets. These can be safely set in the autumn, but they must be carefully covered with earth, or with earth and manure or straw. When proper care is used, we would much prefer setting them out in the autumn.

A Movable Pasture Pen.

We had a field this year, on which many rank weeds grew, and desiring to prevent them from going to seed, we made a movable pen, and pastured the ground with pigs. Four panels, like the one shown in the illustration, were set in a square, and secured by wires at each upper corner. This provides a strong, secure pen, which can be moved



A PANEL FOR PASTURE PEN.

about easily as often as the pigs root up all the weeds in the enclosure. By means of this contrivance, we kept the weeds in check until the field was plowed. Aside from eating the weeds, the pigs destroyed many injurious insects found in the soil. A calf can be kept in such an enclosure in a corner of a meadow or other field, where it could not be let loose. By making the panel sections of pickets, a goose-pen is provided. If the sections are used in a row, let the braces on every alternate one stand in an opposite direction from those next to them. In this way they firmly brace the fence.

A Combined Hinge and Sliding Gate.

J. R. L. Dean, Greene County, Ohio, sends us sketches of a gate especially suited for barn-yards. It is fourteen feet wide for ordinary use, and has three short posts. The middle one is movable. A box of two-inch boards made to fit the post is planted in the ground; in this the post is set, and can be removed at pleasure. This post is placed three feet from the outside one. The hinge is made of hard-wood, with a wheel six inches in

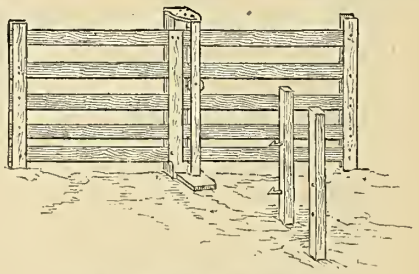


Fig. 1.—THE GATE OPEN.

diameter, as shown in figure 1. It should be so constructed that the gate will move freely, but not too loosely. It is supported at the top by a cap placed diagonally across, and at the bottom by a block of locust or cedar under it. The middle uprights of the gate should be placed a little to one side of the center, so that the gate can be balanced upon the roller. Wooden catches are placed in the middle post, upon which the gate rests. To open the gate, push it back to the middle post, elevate the gate slightly, and it will roll down to the center, where it can be readily opened. Figure 1 shows the gate open, and in figure 2 it is seen

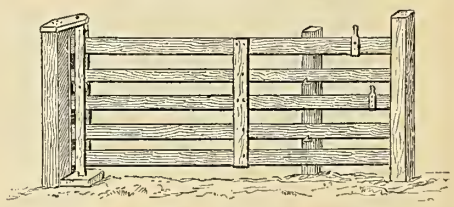


Fig. 2.—THE GATE CLOSED.

closed. This gate has no latch. A barn-yard gate is not usually opened wide. A space large enough to admit a man or horse is all that is necessary in most cases. It is more easily opened than the ordinary gate, and will stay where it is placed. By cutting a notch in the third board, and elevating it to the upper catch on the middle post, a passage is made for hogs and sheep, excluding larger animals.

Northwest Winds Kill the Peaches.

Mr. Josiah Hoopes, author of "Book of Evergreens," and an experienced horticulturist, has observed for several years that excessive northwest winds invariably affect peach trees disastrously, while those of a lower temperature coming from any other quarter, are not serious. Extreme dryness, along with the high northwest winds, accompanied by very cold weather, most affect the health of the peach tree. If the air can be filled with moisture, there is much less danger from the winds and cold. With these observed facts in mind, the peach grower should take all possible precautions. An evergreen or other wind-break upon the northwest side of a peach orchard, may make all the difference between an abundant crop and no fruit.

Holland Cattle.—A Good Record.

A few years since the milk records of Crown Princess (Echo's dam), which was a little over fourteen thousand pounds in a year, and of Topsy forty pounds eight ounces in a day before she was two years old, attracted a great deal of attention among dairymen. About this time, Lady Clifden produced over sixteen thousand pounds of milk, and Maid of Twisk more than fifteen thousand pounds in a year. Among the highest daily records were those of Texelaar, Crown Princess, Fraulein (Echo's grand-dam), Lady Clifden, and Maid of Twisk, all of which ranged in the seventies. The greatest butter record published, as made by this breed, was seventeen pounds by Texelaar, in six days. Subsequently many dairymen and others became gradually impressed with the belief, that this breed of cattle (called Holstein, and imported from Holland), was superior to all others for the combined qualities of producing milk, cheese, and beef. The result of this has been an increase in importation of from five to ten head in a year, to more than twice as many hundred. During the past four months about eighteen hundred head of cattle, imported from Holland, have been offered for registry in the Holstein Herd Book.

The number of Holland cattle imported during the year beginning April 1st, 1884, will doubtless be over three thousand head. Many cattlemen and authorities assert, that a general-purpose-breed is an impossibility; that one cannot have a Shorthorn and a Jersey in one breed, or a Clydesdale and English Thoroughbred in the same animal. That is not the question. Is there a breed of cattle which pays the farmer in the dairy, and also in producing beef? If so, which breed is best adapted for this purpose? The Holland has certainly proved itself not only one of the best general-purpose-breeds we have, but a very remunerative investment for milk, cheese, butter, and last, but not least, for beef. The advance made by this breed during the past ten years exceeds the anticipations of its ardent admirers. The young stock make a rapid growth. A gain of three to four pounds and upwards in live weight per day is frequently made, and one instance of five and a third pounds per day for thirty days is recorded. This is believed to be the greatest increase for the length of time ever made by a neat animal. Yearlings often weigh a thousand pounds and upwards, two-year-olds from a thousand to thirteen hundred, mature cows sixteen to twenty hundred, and bulls in proportion. About three years ago, Aaggie made a milk record in one year of eighteen thousand and four pounds, since which time this record has been excelled five times, viz: by the astonishing record of Violet of over eighteen thousand six hundred pounds, an Ohio cow over eighteen thousand seven hundred pounds, the imported cow Empress over nineteen thousand seven hundred pounds, and twice, two years in succession, by Echo, eighteen thousand one hundred and twenty pounds, and twenty-three thousand seven hundred and fifty pounds. Echo has given an average of over fifty pounds a day for more than two consecutive years. Two-year-olds have increased their daily records from forty pounds eight ounces to over sixty pounds, and in one instance Aaggie Constance is credited with sixty-seven pounds, and mature cows are recorded as giving eighty to one hundred pounds and upwards in a day. Empress is said to have given in Holland forty-eight litres a day for twelve days in succession, which is a trifle over one hundred and nine pounds daily. The cows Jamaica and Etelka have records this year of one hundred and twelve pounds and one hundred and one pounds of milk per day respectively. These are the highest records yet made in America. As butter producers these cattle have also taken the lead of all others. Mercedes' record of ninety-nine pounds six and and one-half ounces of unsalted butter in thirty days, which has not been equalled, gave her the championship of the world. Jantje made ninety-one pounds of butter in thirty days. Nieltje Koudyke's record for thirty days is ninety-five pounds. Princess of Wayne made ninety-one pounds eight ounces in thirty days. The owners of this animal have seven cows, all five years old and younger, except one, that have averaged over twenty pounds per week, four that have made over twenty-one pounds, and two over twenty-two pounds eight ounces per week since January 1st, 1884. Are there any herds among the butter breeds which excel this remarkable record? DUDLEY MILLER.

Adobes as a Building Material.

J. L. TOWNSEND, UTAH.

The early settlers of the Far West, although fresh from the woodland regions of the Mississippi Valley, and the New England States, were not slow in abandoning the log cabin, and adopting instead the sun-baked adobe houses of their Mexican neighbors. The old Mexican adobes are large and clumsy, being twenty-four inches long, twelve inches wide, and six inches thick, and so heavy that both hands of the mason are employed to lift and place them, thus requiring the trowel to be laid down in handling each piece. This was too unworkmanlike for the brick-layers, who demanded a more convenient size, and adopted a dimension which is still in use. A brick-shaped piece of moulded earth or clay, baked in the hot sun, two and one half inches thick, five inches

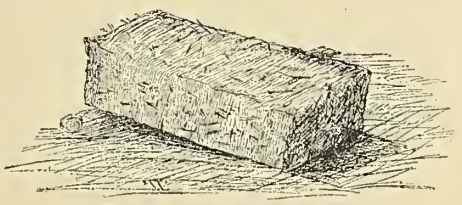


Fig. 1.—A MEXICAN ADOBE.

wide, and ten and one half inches long, is now the common adobe of this country. There are blue adobes, white saleratus adobes, and common adobes (pronounced "dobys"). Both the white and blue adobes are made from beds of clay found in the lowlands. These clay beds are more or less impregnated with an alkaline salt. The common adobes are made from any loamy or clayey soil with sufficient adhesive properties to permit the pieces being handled when dried or baked. Formerly adobes were made at the clay beds, thus forming the adobe yards to be found everywhere near the towns and villages. These "doby yards" bear some resemblance to the country brick-yards of the Middle States, but lack the debris of the kilns, the kiln-stacks, the piles of fuel, and the sheds of the yards that were made in rainy climates. In some of these adobe yards the common pud-mill of the old-fashioned brick-yard is occasionally seen. The adobes made from clay mixed by these mills, are not considered nearly as strong as those made in the more primitive way of treading and mixing the material with the feet.

Adobes are made at the yards as follows: Selecting a place on the bed of clay convenient to water, or where water can be obtained by a small ditch reaching to the nearest irrigating ditch, the top

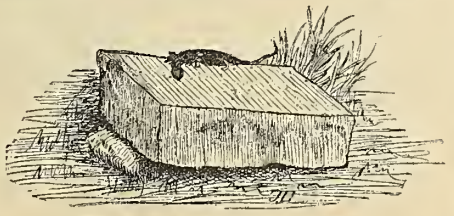


Fig. 2.—A CONVENIENT ADOBE.

soil is shoveled away where the clay is to be excavated. A space is cleared of the salt grass and rabbit-brush, and leveled for a drying floor. The "doby" maker, with a boy to assist, digs out one or more yards of clay, forms a mound so shaped as to soak up water, throws or runs water upon it and leaves it to soak over night. In the morning this clay is mixed by treading into rather a stiffer mass than can be worked through a mill.

The "doby" maker then commences to mould by forcibly throwing double-handfuls of the mud into the moulds, leveling them off with a sweep of the hands, and pushing the mould to the boy who empties it on the drying-floor.

Another mould is filled while the carrier is emptying the first, and so on. An average day's work is five hundred adobes, but from eight hundred to a thousand are frequently made by rapid and skillful workers. After being partially sun-baked, they are turned up on edge, and when sufficiently dry are placed in convenient piles. It takes these adobes in dry summer weather, about one week to dry.

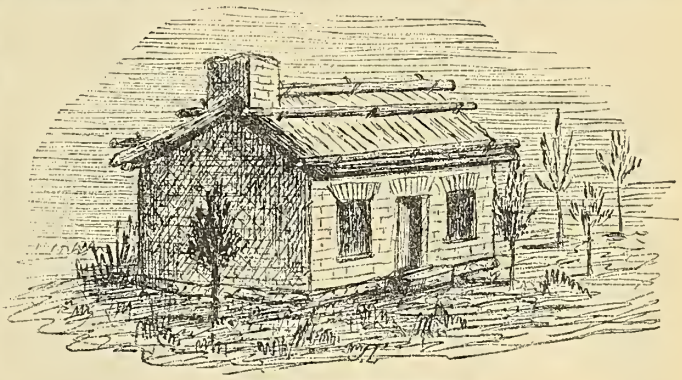


Fig. 3.—AN ADOBE HOUSE.

The loading, transportation, and unloading of these adobes made at the yards, damages a large number by knocking off the corners and edges, and it is now customary to have them made where the building is to be erected. The clay is piled at a convenient place, and water procured by digging out a small temporary ditch.

Common adobes are always made on the site where they are to be used, frequently from the earth excavated from the cellar. These are made either by foot or machine, according to the quantity required. They are used either for the inner side of walls or for division walls, where they are not exposed to the weather. In the order of durability, when exposed to the weather, the "white saleratus doby" is all that could be desired.

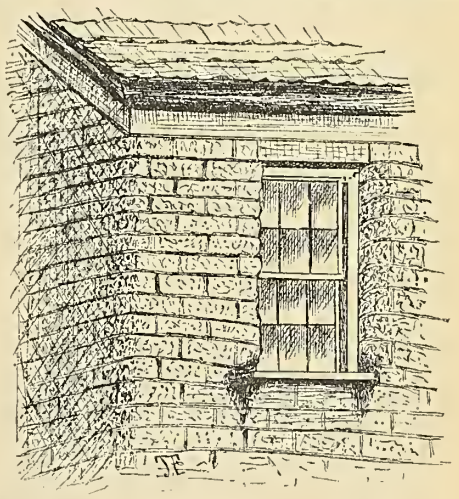


Fig. 4.—ADOBE WALL, THIRTY-NINE YEARS OLD.

In examining carefully the wall of a house erected twenty-nine years ago, this variety shows no appreciable wear, while the blue adobes intermixed in the same wall are more or less weather-beaten and worn. This wall has a southern exposure, and has stood the beating rains from the south and west since first erected. In the same dwelling the walls facing east and north show no marks of weather wear, appearing smooth and in as good order as if but recently constructed.

The Daikon—Japanese Winter Radish.

Travellers in Japan mention the very general use in that country of a large white radish, called "Daikon," the varieties of which are given distinctive names. Some of these sorts have been cultivated in France, and are there regarded as a valuable addition to the list of winter vegetables. Those of our readers who have tried the "California Large White Winter Radish," recently offered by our seedsmen, have made the acquaintance of one of the forms of the Japanese Daikon, which has been sent out with the above new name. The usual form of the Daikon is that of the "Cow-horn Turnip," but much larger, measuring from one to two feet in length, and four to six inches in diameter. The exterior is usually a very pure white, but those tinged with rose-color and violet have been produced. The usual form is that shown in figure



Fig. 1.



Fig. 2.

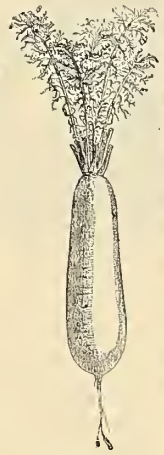


Fig. 3.

1, and called by the Japanese *Maru nerima;* those given in figure 2, *Shiciucain*, and in figure 3, *Kedissune*, are the principal variations from figure 1. In France the seed is sown during the first half of August. If sown earlier, the roots throw up seed-stalks, and if much later, the roots do not have sufficient time to properly develop before frost. The soil should be fine and rich, and, if possible, manured the previous season. On poor soil, artificial fertilizers are used. The crop, especially on light land, requires an abundance of moisture, as it makes the roots more tender. The roots are used as soon as large enough; those to be stored for winter use are pulled, the tops removed, and stored in a cave or cellar, covering them with earth or sand. If no cellar is at hand, the roots may be kept in pits in the field, like turnips, covered with sufficient earth and straw to prevent freezing.

In quality the Daikons are compared to a very mild turnip. The roots are used raw like our radishes, or to form a part of salads. They are most generally cooked, and in France have been found acceptable in soups, and when stewed and served with various sauces. Properly stored, so that they will not shrivel, the roots keep until spring.

A Hand-Cart.

A hand-cart can be advantageously employed in drawing vegetables from the garden, lawn grass to the barn, and in various other ways. It may be fitted for sprinkling in dry weather, by attaching a barrel or a water-tight tank to the platform. If the pig pasture is a considerable distance away, the same cart may be used for conveying swill. A hand-cart will frequently save harnessing the team, and may be used in many places where horses cannot go. A pair of wheels from an old buck-board, a light wagon, or a sulky horse-rake, with any common axle, will answer for the running-gear. Two pieces of hard-wood, eight feet long and two inches square, make the sides of the platform. The axle should be mortised for the reception of the side-pieces, and three-quarter inch bolts used to hold the parts together. Cross-pieces of hard-wood are placed between the side strips, upon which rest the bottom boards, running lengthwise. The side-pieces should extend at least six inches beyond the bottom board, thus giving space for grasping the cross-bar at the end, when drawing or pushing the cart. These handles should be round and smooth. Legs, or standards, may be hung to the middle of the cross-pieces so that the cart will stand level and firm.

The Tule Lands and their Cultivation.

M. E. BAMFORD.

For the past thirteen years efforts have been made in California to reclaim that part of the country lying along the Sacramento and San Joaquin rivers, commonly known to the dwellers in this State as the "Tules." The tall rushes with which these lands are covered, furnish the Indians with material to make their tule canoes, in which they could go a considerable distance to sea. The roots of the tule also afforded food for the Indians. Tule rushes are now used for making baskets and carpet-lining. The latter is in use in most of the court-rooms of San Francisco, and in many private houses. However, the rushes themselves are not of sufficient importance to prevent their being turned under by the tule-plows in such portions as can be protected by levees from the river. Tule lands, when reclaimed, are among the most productive portions of the State. A great part of the vegetables sold in the San Francisco market, come from Chinese farms on these reclaimed tules. The Chinese market gardeners pay a yearly rent of from twelve to twenty dollars per acre. The tules are especially valued in dry seasons, as when it has become evident that crops on the uplands are to be failures by the drouth, seed may be afterwards planted on the tules, and a good return realized.

In some counties, as San Joaquin, these swamp lands comprise about a quarter of the entire county. Yolo County, on the Sacramento, obtains its name from the tule rushes, the Indian name for which was "yo-doy." There are yet left in Yolo County several hundred thousand acres that are overflowed by the Sacramento every year, notwithstanding the very expensive attempts made to reclaim them.

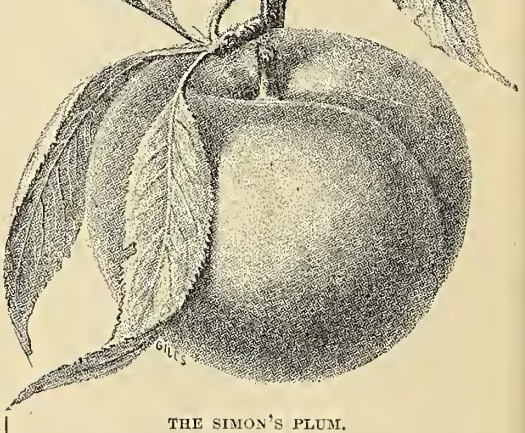
Some of the men who have spent most in the hope of reclaiming these lands, have lost one crop in three. About twenty thousand of these acres have recently been bought by an English syndicate, worth several million dollars, and it is expected that about half a million dollars will be necessary for reclaiming the portion bought. An immense levee is now being built around this section.

In many places along the Sacramento the levees are very large, being sometimes over twenty feet high, and from one hundred and fifty to two hundred feet thick, forming a carriage-drive on top. The debris sent down by hydraulic mining has been a constant annoyance to farmers in the tule districts. The bed of the river being filled up of course causes the water to rise, and the levees must be raised in proportion. This causes additional expense to the farmers, who, in many places, as Sutter County, which has for its entire length on Feather River a line of levees, have to raise funds for maintaining these bulwarks. In some districts the tax on the farms for this purpose is very great, often averaging as high as six dollars and fifty cents per acre. The recent decision in regard to the discontinuance of hydraulic mining, will probably have a tendency to diminish this taxation in future. The levee fund raised by taxation is expended under the direction of a Board of Commissioners chosen by the land owners. Men are constantly employed in watching the levees for any signs of breaking, in keeping down the vegetation upon them, and in poisoning the gophers that would dig dangerous holes if left to themselves.

Many of the tule islands of the Sacramento and San Joaquin, such as Union, Roberts', Staten, Boulder, and Rough and Ready Islands, have been reclaimed by means of levees, and yield good crops. The total amount expended for levees by Yuba County alone, amounts to three hundred thousand dollars. Some tule lands have been known to yield eighty-three bushels of barley to the acre. After levees have been built, some farmers try to clear their land by firing the tules. This process is attended with danger, however, as the fire sometimes spreads to the uplands and destroys the fences and crops of the farmer and his neighbors. In places, tule fires will run for hundreds of feet at a depth of one or two feet under ground, and then burst out again at some unexpected place, so that it is impossible to estimate the probable damage of such a fire. Nothing but rains will stop it when once under way. The tule reeds are much more safely got rid of by use of the tule-plow made for the purpose. The State has sold, up to the present time, in the valley of the Sacramento, about five hundred and forty-nine thousand acres of tule lands.

An Entirely New Plum.

A number of shrubs and small trees which came from a European correspondent a few years ago, were planted in a nursery row preparatory to making a final disposition of them. This year one of these attracted attention by a show of fruit. It proved to be *Prunus Simoni*, Simon's Plum, a native of the northern part of China. The tree, now about ten feet high, has slender, erect branches. The lance-shaped leaves are minutely serrate on the margin, and with two to four small globose glands at the base. The leaves are dark green and shining on the upper surface, and lighter colored and dull below. The fruit, ripe about August 10th, sometimes reaches two inches in diameter, though usually smaller, and has a very short stem. It is much flattened lengthwise, and at a short distance appears like a diminutive apple. It has a distinct, but not very deep suture. The skin, which is perfectly smooth, is of the dark-red color known as cinnabar. The flesh is of an apricot-yellow color, and somewhat adherent to the stone. The stone has a nearly orbicular outline, thicker on one side than on the other, and marked with furrows and holes in a similar manner to the peach, though in a less degree. The fruit has an agreeable and peculiar odor, recalling that of the apricot. The flesh, while not very juicy, is, when fully ripe, agreeable, with a marked and pleasant flavor, in which the



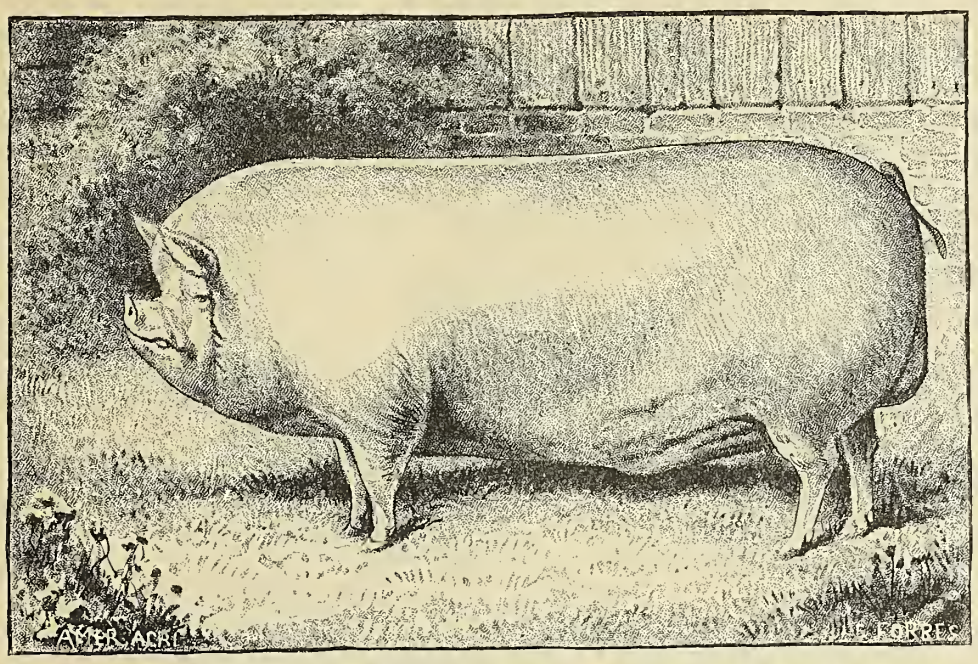
THE SIMON'S PLUM.

taste of bitter almond is quite perceptible. It is the possibilities that this new plum presents, rather than what it now is, that interests us. When we see what has been done in improving the Sand Pear by hybridizing, we hope some one may experiment with the Simon's plum, and make it the foundation of a new class of plums, and perhaps of peaches. Pomologists will observe in this fruit a remarkable union of the characters that distinguish the plum and the peach. Its smooth skin, and the character of the flesh are those of a plum, while the glands at the base of the leaves, and the grooved and rough stone are like the peach. Indeed, Decaisne originally named it *Persica Simoni*, Simon's Peach. This species shows that Bentham and Hooker were right in uniting the almond, peach, plum, cherry, apricot, etc., all under the single genus *Prunus*.

Small Yorkshire Pigs.

Small Yorkshire swine are an English breed, and the result of the best efforts to improve white pigs. It comes of many crosses, and is no doubt built upon some family of pigs in the county of York. English breeds of pigs have been so much interbred, that the Agricultural Societies of England usually offer prizes for "small white" and "large white" pigs, and for black pigs of large and small size also—not attempting to distinguish between breeds. In this country we have drawn very close distinctions between Suffolk, Short-faced Lancashires, Small Yorkshires, and several other supposed or true breeds. It is very easy to establish a family of pigs, which will have the same general characteristics. Anybody can do it with one good thoroughly well-bred boar as a foundation, provided that after a few generations he can return in his breeding, and take another cross from a very similarly bred male animal of equal merit. This does not make a true breed, for with careless breeding it will revert as fast as it was formed, while a well established breed, even if neglected and carelessly bred, will remain true to its type a long time, though, of course, it too will gradually change if it does not entirely succumb.

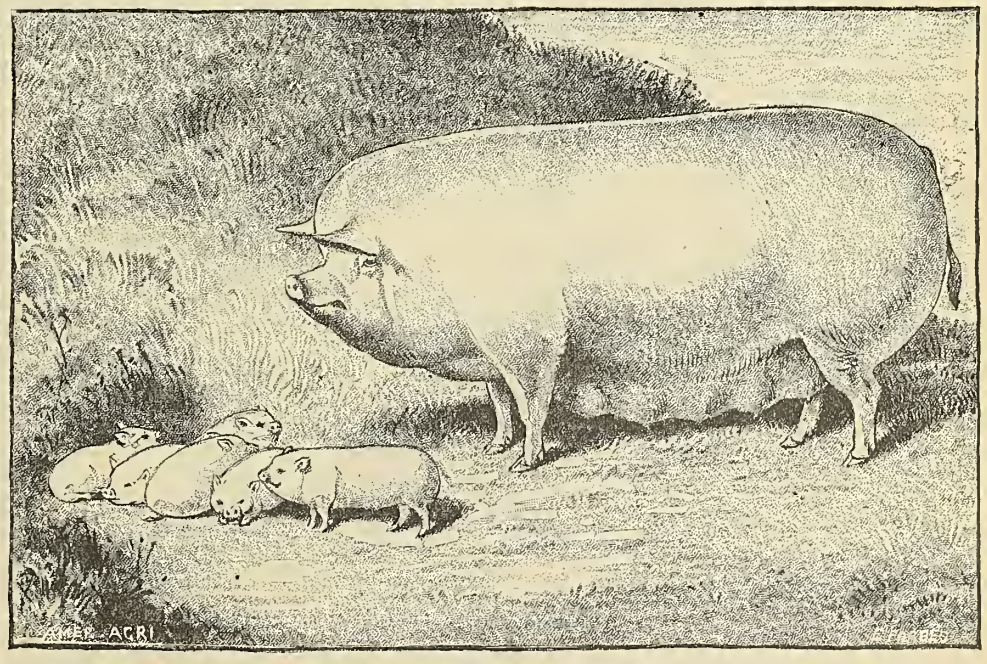
The Small Yorkshires are the result of so gradual an improvement and building up of good qualities, that they are recognized as an established breed, both in this country and in England by all classes of breeders. They are characterized by long bodies, which are both broad and deep, exceedingly little offal, small heads, wonderfully short faces, which are often not more than three or four inches long, measuring from the corner of the eye to the end of the snout, and not more than two, measuring from the deep wrinkle separating the forehead from the nose. The face has, however, great breadth. The legs are short, the belly in breeding sows usually touching the ground, hams, shoulders, and sides greatly developed. The skin is thin and well covered with hair, which is always white. Dark flecks in the skin, but not affecting the hair, are highly objectionable, but sometimes occur. Any black hairs indicate impurity of blood and are a disqualification. So strongly inbred is this color characteristic, that we have never known a pure Small Yorkshire male to get anything but white pigs, even when bred with Berkshire or Essex sows, the color of which is black. The two beautiful pigs of which we exhibit portraits, taken from photographs, are of the old and famous stock of Col. R. M. Hoe, now no longer a breeder. They were imported several years ago, and their blood is very widely disseminated among the herds of Small Yorkshires in this country, so much so, that it is safe to say that animals of their blood will be among the winners this year at every prominent agricultural show from Maine to California. We are happy to give accurate measurements of these famous pigs. Those of King John were taken when he was thirty months old, and Snowdrop was measured when five years old, and probably all things considered, was the best sows of the Small Yorkshire breed that has ever been imported.



SMALL YORKSHIRE BOAR "KING JOHN."—*Drawn (by Forbes) and Engraved for the American Agriculturist.*

	King John.	*Snowdrop.*
From end of snout to rear of ham	58 in.	53 in.
" base of ear to rear of ham	55 "	49 "
" ground to level of top of ham	30 "	27 "
" ground to belly line	6 "	5 "
Width across the hams	19 "	18 "
" " " shoulders	20 "	19 "
Girth behind forelegs	64 "	56 "
Length of snout from corner of eye	4 "	4½ "
" " " " facial wrinkle	3 "	3 "
" from knee to elbow	4 "	4 "
" " knuckle to hock	5½ "	5 "
Weight	520 lbs.	375 lbs.

These measurements are easily understood, and persons unfamiliar with the Yorkshires may easily take the same from their own full-grown pigs as a comparison. These two animals are well known among Yorkshire breeders, and there are many pigs that have equaled the measurements given. There are thousands of witnesses to confirm the figures.



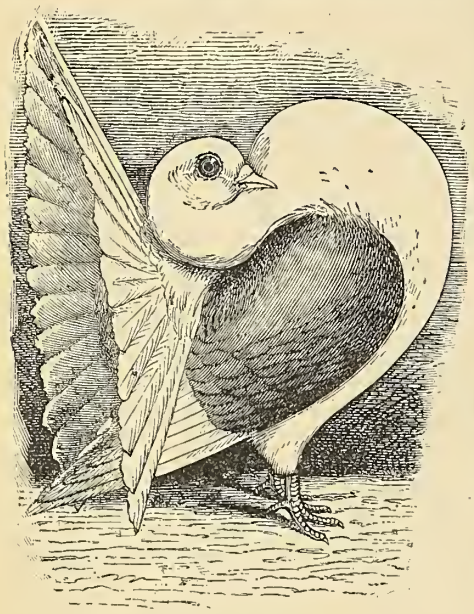
SMALL YORKSHIRE SOW "SNOWDROP."—*Drawn (by Forbes) and Engraved for the American Agriculturist.*

Early Spring Pigs.

For many reasons it is desirable to have pigs come early in the spring. There is no single valid objection to it, and many advantages. The first day of March is the first day of spring, but pigs born that day may find our climate no milder, or more favorable than if they came into the world during a blizzard in mid-winter. At any rate, the foster hand of man, and provident care, will be necessary in either case. And this will be equally true if we postpone the event until the first of April. In June, July and August, we often let the sows have pigs in the fields, and we are not sure but these are good months in which to let the pigs start on their short career. The objection to it, if it be an objection, is that the pigs have to be wintered over. We do not propose to discuss this question here. All we wish to say is, that if you want spring pigs to fatten and sell the following autumn, you must not only get a good breed or cross, but you must feed well from the beginning to the end, and try to get an early start. The period of gestation in a sow is one hundred and twelve days, or sixteen weeks. Sows served November 1st, should come in February 21st. In our experience it is just as easy to have pigs in January as in March or April. Of course you cannot control this matter. The only thing to do, if you wish early pigs, is to bring the sows up from the summer pasture the latter part of October, and give them more stimulating food. If they have had nothing but grass for several weeks or months, a liberal grain diet in addition to grass, or other succulent food, will be likely to accomplish the object. The farmer who raises many pigs, makes a mistake if he does not keep a quiet, well-bred boar on the farm. If he has had experience only with a rough, ill-bred hog, that would tear down the pen or eat it up, we do not wonder he objects to keeping one. But there is no necessity for keeping such animals. Get a pure-bred boar of some quiet, refined breed, and there is no more difficulty in keeping him, than there is in keeping a ram or a rooster. One of the most profitable branches of pig raising is the supplying of young pork to the markets or private customers. Many families will gladly pay an extra price for a cleanly fed and well fattened young porker that weighs two hundred pounds or less. To produce such pork of suitable size by autumn or early winter, it is necessary to have the pigs come very early. The milder climate of the Southern States is more favorable for the production of young porkers, but it is not difficult for them to be grown at the North with considerable profit by those who thoroughly understand the business. J. H.

Breeding Pigeons—Jacobins and Fantails.

More than ordinary attention is now being given to the breeding of pigeons, and scarcely a day passes without bringing to our attention the wonderful feats of the Homing variety in their remarkable trials of speed. We have given illustrations of the Carrier Pigeon, and now present engravings of



THE FANTAIL PIGEON.
Engraved for the American Agriculturist.

two other striking classes, viz., the Jacobins and Fantails. The various breeds of fancy pigeons present a wonderful variety in the color and markings, as well as in the size and form. So great are the differences among them that one finds it difficult to believe that all are varieties of one species of wild pigeon, yet no fact in natural history is better established than that all the domestic pigeons were derived from the Wild or Rock Pigeon of Europe. It is estimated that there are more than one hundred and fifty distinct kinds of pigeons which breed true and have been named. The peculiarities which distinguish the breeds are not external markings alone. The skull, beak, and even important bones of the body have been altered in such a manner that the differences between breeds of pigeons are as great as between some genera of birds. The breeds of fancy pigeons should have special interest for the farmer and stock-breeder, as they show in a striking manner how far it is possible to modify the typical form of a domesticated animal by human agency.

The Jacobin and the Fantail are very unlike in external appearance. The Jacobin is a very neat bird with long wings and tail, and a rather short beak. The distinctive feature of this breed is the hood, which almost incloses the head, and meets in front of the neck. The hood consists of certain feathers of the neck which are greatly increased in size and reversed in their growth. The hood gives a singularly quaint appearance to these exceedingly quiet, home-loving birds. The Fantails are quite the opposite of the modest Jacobins, being the proudest and most vain of all pigeons, and on account of their beauty are one of the most popular of all the fancy breeds. The tail in the wild pigeon contains twelve feathers. In the Fantail the number is greatly increased, as many as forty-two having been noticed. The feathers are long and broad, and are arranged in an irregular double row pointing upward and expanding like a fan. Though the usual position of the tail is erect, it may be depressed so as to sweep the ground. The bird has a full and broad breast, and its thin neck is bowed backwards. In the best birds of this breed, the carriage is a peculiar strut, the head being carried backwards until it touches the tail feathers. Fantails with pure white plumage are the most popular.



THE JACOBIN PIGEON.—*Engraved for the American Agriculturist.*

Wooden Foundations for Buildings.

In many sections where stone are scarce and brick not easily obtained, wood is from necessity employed in foundations for houses and other buildings. The wooden supports usually consist of sections of a log one or two feet in length, set upon end at the corners and other parts of the building. Blocks thus placed decay in a few years, especially where the sills rest upon them. There are two good plans whereby this trouble is in a great measure overcome. Two well seasoned and oiled blocks, four inches wide, two inches thick and ten inches long, are placed edgewise on the top of the foundation blocks. This insures a free circulation of air, and rapid evaporation after a rain. The lower block is cut in the form of a triangle, and laid upon the ground, thus shedding rain, and quickly drying out when wet. Another form of wooden support for small buildings consists of pieces of sawed stuff, two feet long, two inches thick, and six inches wide, laid up like open brick work. This makes a very neat foundation, and dispenses with the building of lattice work. If the outer face is planed and painted, this adds to the good appearance and utility as well as durability of the foundation.

Animal Ailments.

PROFESSOR D. D. SLADE, HARVARD UNIVERSITY.

THROWING UP THE HEAD.—W. L. Liptrott, Brooklyn, N. Y., has a horse of much value, which has a trick of throwing the head up and down, and of moving the hit. He has tried different bits and martingales, but without effect.—Horses, like men, often acquire strange and unaccountable tricks, which are very difficult to overcome. The one in question is undoubtedly owing to long and continuous confinement of the head to some unnatural position in his early days, probably by the use of a tight hearing rein, with a more or less cruel bit. We know of no way of overcoming this difficulty, except by exercising the utmost patience, and by allowing all the freedom possible to the head and neck, consistent with the owner's comfort and safety. A plain bit, without the use of hearing rein should be tried. In the course of time, the trick may be overcome, or forgotten.

WEAKNESS OF THE LOINS.—W. Spear, Montgomery Co., Alahama, has a horse that rises with difficulty after lying down, and is trombled in getting up a hill even with a light load.—This condition is evidently dependent upon a weakness, which may be the result of injury to the spinal cord, such as would be caused by a sprain or a blow. Whatever the cause, the animal is in no condition for work, and should be at once turned out to grass to recuperate his strength, before being again subjected to labor. Where practicable, douches of cold water upon the loins and spinal cord may be of service during the summer months.

STRUCK BY LIGHTNING.—R. Berninghans, Palo Alto Co., Iowa, had a three-year-old colt struck by lightning three weeks previous to writing. The animal was for an hour completely stunned, but has been very gradually recovering. The mouth hangs slanting to one side, and is much swollen externally. One of the eyes appears to be destroyed. His walk is staggering, and the hind legs are affected.—There is every probability that the animal will gradually regain his strength and health. The nervous system has undergone a tremendous shock, but with good care and attention, so young an animal has every chance to recover. No particular treatment is required beyond the very best of care, plenty of nutritious food, and well aired quarters, with daily long hand rubbing of the limbs, and especially good grooming.

CONTRACTION OF THE FOOT.—C. D. Harris, Frederick Co., Va., inquires for the mode of treatment for a horse with contraction of the "coffin bone."—Contraction of the foot is a more proper designation of the condition in question, for the entire organ participates more or less in this abnormal state. Contraction is not to be considered a disease in itself, but as a result of unhealthy changes, which various causes have brought about in the foot. There is no more fertile cause for this condition, than the almost universal habit of "opening up the heels" in the preparation of the foot for the shoe. Nature has placed a strong buttress at the heel, which is formed by bending in the wall of horn towards the centre of the foot, constituting what is known as the bar. Now by cutting into this bar at the angle, this defence against contraction is very much weakened, and sooner or later, owing to this mutilation, the shape and size of the foot is altered. If the foot is to be preserved in its original normal condition, the entire lower surface, except the border of the wall, must be left untouched by knife or rasp. This cannot be too strongly insisted upon. Where contraction has already taken place, we cannot hope to restore the parts to their former condition. The treatment best suited for such cases is the removal of the shoes, and a run at grass in a wet pasture. No mechanical contrivances are of any avail.

OBSCURE LAMENESS.—P. Smith, Kent Co., Mich., has a horse that evinces lameness after a drive of five to ten miles on the road. If in pain, it stands with the right foot forward, distance in proportion to pain. Pain is produced on raising and bringing the foot forward. Has not been made lame often, or kept lame long at a time.—It is difficult to form a diagnosis from these data. If the trouble was in the shoulder or elbow joint, then the lameness would be continuous, and manifested in the walk. At the same time, the pain experienced on lifting and moving forward the limb is almost a sure indication of disease in these same joints. Rheumatic affection alone seems to answer to our inquiries, as this may attack any joint, and may appear and disappear. For treatment, use warm, stimulating lotions, well rubbed in at the seat of pain. The following is excellent: Two ounces of Hartshorn, the same quantity of Camphorated Spirit, an ounce of Oil of Turpentine, half an ounce Laudanum, mixed together. Enjoin rest, or very slow farm work. For a horse that will not get fat on abundance of food, change the diet completely and give less work. A run at grass for a few weeks would, in a case like the above, undoubtedly work wonders.

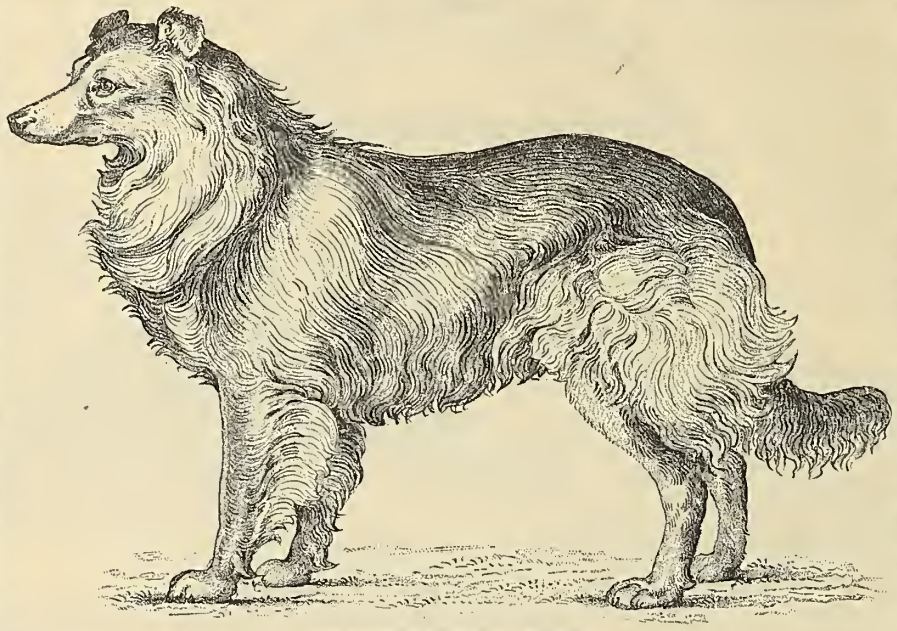


FRUITFULNESS AND ABUNDANCE.

Drawn and Engraved for the American Agriculturist.

Our Dog.

We keep a dog, and love him too. He is a Scotch Colley of royal mien, as seen from his portrait. He answers quickly to the name of "Rover," and has no end of admirers. The Scotch Highlands are the home of Rover's ancestors, where the Colley breed is found in its best estate. Here in the grassy valleys, and on the rocky table-lands this dog renders the labors of the shepherd profitable and easy. The pure-blooded Scotch Colley is a medium-sized dog with a clean, foxy face, half-pricked ears, bright eyes, and a shrewd expression. He has no superiors in canine intelligence. The coat is long and silky, and in color varies greatly; black and tan with a white collar, legs and belly is not infrequently seen. The fore legs are feathered, and the hind ones are short-haired below the hocks. The shoulders are deep, back rather short, and the tail long, gracefully curled up at the end and heavily feathered. The constant and intimate association with the gentle milkmaids of their native island, has molded the character of the far-famed peace-loving Jersey cow. In like manner the Gaelic shepherds have most thoroughly developed the desirable qualities of the genuine Scotch Colley. "Rover" is a living monument of the molding power of man as exercised in the development of a shepherd dog. He is not a dog for idle tricks; though fully able to learn them, he prefers to render more important service. His supreme delight is to reign at the head of a flock. There his language and movements are better understood than those of his master. He guards and guides with great prudence and judgment, and only uses harsh means when peace and order demand them. His good disposition quickly gains him the confidence of the flock in his charge. The Colley resents changes of ownership, but is most faithful to a time-tested and beloved master. Wherever sheep are kept, the Colley is useful. The good services he will render are without number, and many of them prove the possession of a high order of intellect. The achievements in herding wild sheep at the prize competitions are simply wonderful. We do not know the full extent of "Rover's" abilities, but it is certain that he is an important fixture of a farm that is well regulated in one particular at least—the possession of a faithful, thoughtful, labor-saving, peace-loving, affectionate, and handsome Scotch Colley dog.

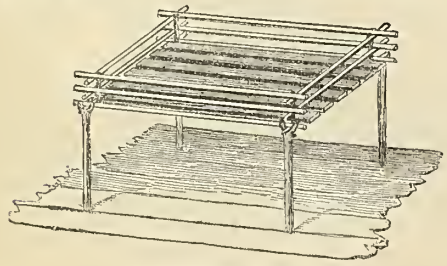


OUR SCOTCH COLLEY "ROVER."

Engraved for the American Agriculturist.

A Swine Feeding Pen for Corn.

A convenient corn pen which we have used in our fattening lot for swine is shown in the engraving. It is used for corn fed directly from the field. In the center of the feeding floor four stout forked posts are set at the corners of a square, the sides of which are eight feet long. The forks support two poles, and on these is placed a floor of planks or rails, with a square rail pen upon it a couple of feet high. The posts should be just long enough to admit the hogs under the pen. A wagon load of corn, when gathered, is thrown into this pen. As the corn remains in the pen only a short time, no roof is necessary. The pen can easily be made to hold one hundred bushels, if desired. As the hogs can get under the pen no corn is lost by falling through the floor. There is no loss from rats and mice, as they cannot burrow under the pen. The farmer can stand in the pen and throw the corn by handfuls on the feeding floor, without striking the swine. The flesh of fat hogs is easily bruised. The corn can be assorted as it is fed to the pigs, the bad ears being thrown into one corner. It is easy to unload the wagon into the pen, and as one is about on a level with the other, the corn shells but little when thrown into the pen.



A PIG-FEEDING CORN PEN.

The posts must be stout and set well into the ground, otherwise the corn may break the pen down upon the swine. If the posts are set shallow or loosely, the hogs will rub the pen down. Pens like this are sometimes set upon stones, but we cannot recommend this, as the hogs are liable to bring the structure down upon themselves by scratching against the stones of the foundation.

What Crops shall we Gather First?

Every farmer at this season of the year frequently asks the above question. A few suggestions will not be unacceptable—even to the writer! It is a fact that no matter how old a farmer may be, and how much experience he may have had, he will often find it to his advantage to set down with a paper and pencil, as we are now doing, and think out a question of this kind, and write down his conclusions. We have been farming for half a century, but could not off-hand tell you which crops to harvest first, or what job it is best to go at on the morrow. Let us think a moment. Of all the root crops, parsnips and salsify are the hardiest, and beets and mangolds the tenderest. Beets either for the table or stock, and especially if any of them are to be set out for seed, should be gathered before a severe frost. If the crop is growing vigorously, and the leaves full of sap, a slight frost will bring no harm, and even a severe frost will do comparatively little damage. The leaves protect the roots. Nevertheless it is well not to run too much risk. After the first of October the farmer who has many beets or mangels to harvest, should keep a close watch of the daily weather report, and if a severe cold wave or frost is approaching, harvest the crop. If in a hurry the roots may be drawn into heaps, tops and all, and covered with a little straw. In fact, little damage will be done if the heaps are not covered at all. He must not forget the apples. On our farm we are generally picking apples and harvesting beets at the same time. When dry, pick the apples; while the dew is on gather the beets or pick up the windfalls. As a rule, many farmers gather their winter apples too early. So at least the buyers tell us—but then they have not to run the risk of a high wind blowing off the fruit. Greenings should be picked before the Baldwins and the Northern Spies and Russets last. We usually let the cider apples hang as long as they will, or until the buyers want them. Autumn pears should be gathered as soon as the stems, when the pears are lifted, part readily from the branches; winter pears are rarely allowed to remain hanging on the trees too long.

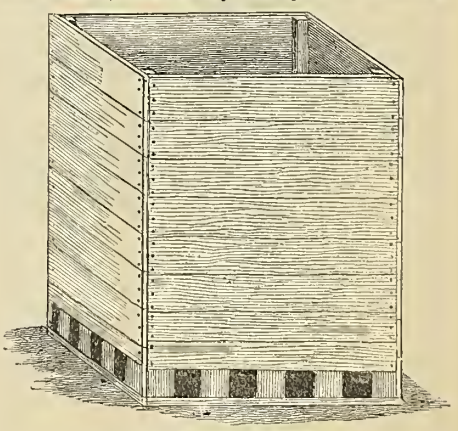
Cucumbers for pickles should be picked at least twice a week as long as they last, and as soon as they are large enough. Make sure of enough for your own use. Some morning you will wake up and find the cucumber pickle business ended for this year. Winter squashes can remain out as long as the fruit is covered with leaves.

Onions, if you are unfortunate enough to have any still in the ground, should be pulled and dried on the land in the field, or spread out on a floor.

After these crops are attended to, we can suit our own convenience as to whether we shall first dig potatoes, husk corn, or pull carrots. It is a question of weather, convenience and condition of the land or marketing the crop. He is a fortunate farmer who keeps up with his work at this season. Turnips and cabbages stand quite a freezing. Celery, earthed up, is rarely injured before Thanksgiving.

Salt and Ashes for Swine.

At all times, but especially when fattening, hogs should have a constant supply of salt and clean wood ashes. When kept continually before them, they will not eat too much salt. It is only when deprived of salt for some time that swine will take it to excess. The engraving shows a very convenient arrangement for providing hogs with salt and ashes. It is an ordinary box with an opening left all around at the bottom. This opening should be three inches wide, with slats nailed across it from two to four inches apart, making a succession of holes. The box is partly filled with salt and ashes mixed, and firmly stamped in the box.

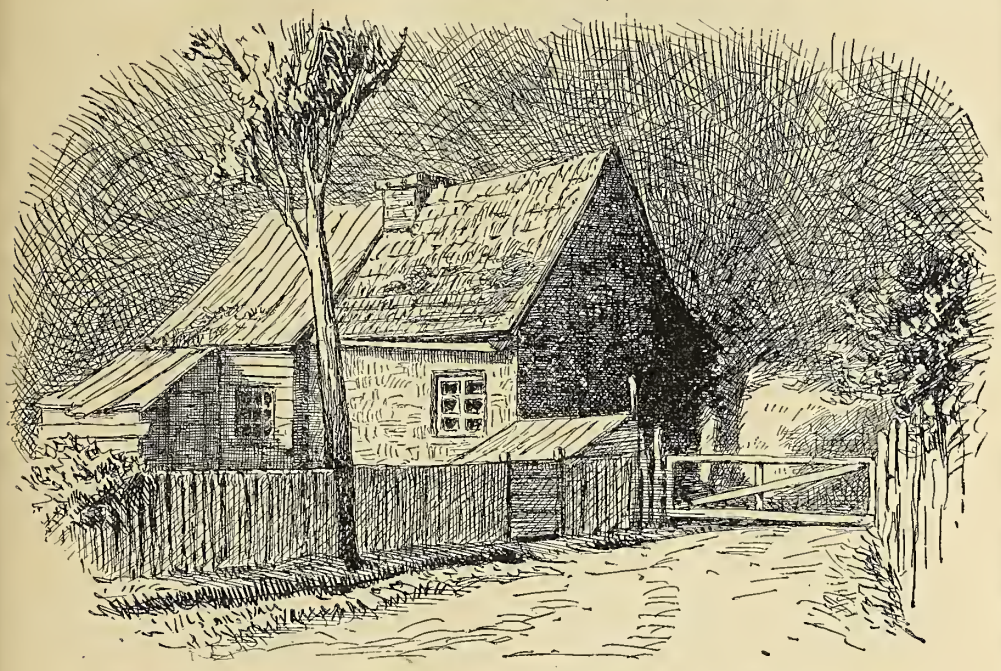


A SALT AND ASH BOX.

The hogs will lick the mixture out through the holes along the bottom. A roof of boards, not shown in the cut, is placed over the box to keep its contents dry. The more charcoal in the ashes the better. Salt assists in the digestion of the food; ashes rid the intestines of worms, and strengthen the appetite. Hogs must have an abundance of water.

Farms and Gardens in New York City.

There are many lanes on the maps of the City of New York, but the only thing rural about them, is their names. There are, however, in this city of wonderful contrasts of the miseries and splendors of modern life, certain spots in which nature still lingers. Our city farms are not nearly as numerous now as twenty years ago. Then you could find them below Fourteenth street, and in the quiet by-ways of the old Ninth ward. But there are some left yet, even in the heart of the city, and within the far-reaching limits of Gotham, thousands of acres still return their yearly crops in produce instead of rents. There are old farms and peaceful pastures, and among them people who lead pleasant rural lives, environed by the turbulent multitude that pursues fortune with a feverish fury, in factories and stores, and the great marts of commerce and speculation. People who are not New Yorkers, picture the metropolis as one monumental mass of brick, and stone, and iron, with enough timber thrown in here and there, to make a roaring fire once in a while. They know that there are some parks, great and small, among these rows of houses, but there, as far as they know, the touch of nature which brightens and purifies the city, ends.



OLD FARM HOUSE IN MANHATTANVILLE.—*Drawn and Engraved for the American Agriculturist.*

Among the rocky undulations of Manhattanville, agriculture still holds its own. There is quite an extensive settlement of market gardeners on the west side of the city, between Central Park, and the North River. There are farmers here who live in the same houses, and till the same soil their grandfathers lived in and tilled nearly a century ago. The improvement in the city has made their land worth as much a foot, as it once was worth an acre. The old farm-house at Manhattanville, the district above Central Park and near the Hudson River, the picture of which we present, was built over a hundred years ago. Two miles further on, at Washington Heights, the upper end of Manhattan Island, is Snider's Lane, a country road around the side of a hill, with a great row of tenement houses and French flats at one end of it, and a cornfield at the other. Within a quarter of a mile of Snider's Lane, the life of the metropolis hustles and scethes. From its highest point you can see the myriad gas lamps and the electric lights of the city gleam and flash at night. Yet for half a mile or so along its peaceful length, you may wander in solitude, and forget, amid the rustle of leaves, and the songs of birds, that there is such a place as New York. Washington Heights is full of nooks where a metropolitan dweller may be surrounded by quiet rural life. The denizens of certain sections of Harlem can look out of their windows in summer, and imagine themselves in the country, until the jingling street cars, or the clanking elevated trains, dissipate the pleasant fancy. Beyond the Harlem River, and still within the city limits, which extend for four miles and take in the village of Fordham, perched on its wooded hills, New York exhibits a strange alternation of city and country. A couple of minutes walk from High Bridge, in full sight of its crowded picnic gardens, overlooking the Harlem filled with pleasure boats, and with rows of houses along the main road, the solitary little lane of which we present a sketch, leads to a farm as solitary, and out of the way among its orchard trees, as if it was in the Berkshire Hills. The family who occupy this farm, have lived here since the commencement of the present century.

Jerome avenue is one of the liveliest thoroughfares in New York. It leads from the Harlem River at McComb's Dam bridge, to the famous Jerome Park Race Course, near Fordham. Yet there are scores of farms whose lanes lead out into the bustling street. One of these farms is quite famous for sheep, and on others blooded horses and cattle are raised. One of the loveliest lanes in the city is along Jerome avenue, leading over the Fordham Hills towards the old city of Yonkers. Fordham itself, which is the upper ward of the City of New York, some fifteen miles from the City Hall, is full of charming bits of rural scenery. In Tremont, still nearer the city, in Morrisania and Mott Haven, you find the country elbowing the city. Below the Harlem River, where land is more valuable, the city farmer cultivates vegetable crops. On the other side he grows larger produce. The gardeners south of the Harlem, are not, as a rule, the owners of the land. They commonly hold it on long leases from old estates, and as the leases expire, the owners oust the tenants, and build at once. In consequence of this, you will often find an enormous French flat towering alongside of a picturesque little cottage, or a rude shanty. There is one spot where a vast flat occupies each corner of a block, and between the two is an old farm house, shaded by huge elm trees, and with its narrow strip of land covered with hot-beds, running through the block from street to street.

Apart from the real city farms, there are whole blocks of waste land, so rocky as to be useless for the cultivator, on which the famous squatters of the metropolis have built up that curious community known far and wide as Shantytown—a collection of huts built in the rudest and cheapest way, chiefly of odds and ends of lumber. Its dwellers are laboring men, carters and the like, humble, but useful toilers. The principal industry of Shantytown is goat-breeding, and since goat's milk has become a fashionable beverage, the bulk of New York's supply comes from here. With the great activity in building, however, Shantytown is steadily and surely becoming a thing of the past.

One of the most curious of our city farms, is that of the Penitentiary on Blackwell's Island. On it are raised the vegetables used in the prison. The warden of the Island is the farmer, and the convicts his laborers. They present a melancholy appearance in their striped suits working among the fields, but not nearly so much so as do the lunatics on the Ward's Island farm. These poor wretches are employed in the kitchen garden of the asylum, and the doctors say, the air and exercise are highly beneficial to them. Another very odd farm is on a rock in the East River, near Hell Gate. It is about half an acre in extent, and from the vegetables produced, and the fish caught, the family who have lived here for over forty years, subsist. These hermits of the metropolis, are a brother and two sisters. They live in their little castle surrounded by the waters, and apparently enjoy life thoroughly.

We can include, in the bucolic category, the pumpkin patch in the Tombs prison yard on Centre street.



SNIDER'S LANE.—*Drawn and Engraved for the American Agriculturist.*

Among the Farmers.

New Series.—No. 6.

BY ONE OF THEM.

A Rhode Island Coast Farm.

A few weeks ago I passed over the farm of a sea-shore farmer in the township of Westerly, Rhode Island. It is a neat, well-tilled farm, made rich with sea-weed and good cultivation. Many tons of kelp and rock-weed are annually thrown up by the sea upon the beach, and harvested as carefully as if it was hay. This goes into the pig pens and compost heaps, and then out upon the land, which is chiefly used for growing hay, though I saw an even field of corn and good oats. The meadows are thus made "permanent" for many years, and the hay, chiefly timothy and red-top, with a sprinkling of clover and some other grasses, is of excellent quality. The farm is divided irregularly into little four to ten-acre lots by stone walls, and on even the smoothest fields the boulders, or granite ledges, occupy a considerable per centage of the land. The outline of the farm, though I believe "all in one piece," is of astonishing irregularity, being cut into by bays, and coves, so that I have no doubt there are places where three or four rods of fence would safely confine cattle upon a plot of eight or ten acres. These inlets and coves are full of fish and oysters, so that luxuries are not wanting. The pasture land is largely given up to huckleberry bushes, with bayberry and low blackberries. Even this is not altogether poor farming, for it is claimed, with some reason, that a "huckleberry pasture" stands the drouth better than one from which the bushes have been all cleared off, and the hills left bare and exposed to the full burning heat of the July and August sun.

Here and there, in low places between the rocky knolls, ponds of fresh water occur of a quarter acre to several acres in extent. Many of them are within a few rods of the sea, and about the same level or a little higher. In dry weather, their level is often below that of the ocean at high tide. These afford water for domestic and farm uses, practically inexhaustible, and are scattered conveniently about the farms. Hollows, which ages ago contained such ponds, but which are now filled up, possess the richest soil, admirable for gardening, and in all the hollows and swales which are dry, very fine, rich, dark soil occurs, in which apple and other fruit trees do very well, sheltered as they are by the hills or knolls. In exposed places, the only trees that I noticed were stunted and gnarled cedars, stumpy wild cherry and pepperidge trees, and even these were huddled under the shelter of big rocks, or crowded close to one side of a pool, which shows how severe the brine-laden, wintry blasts must be.

Sheep Culture.

Sand dunes and rocky grazing lands are admirable for sheep, and it seems strange that so few are kept on the Rhode Island coast. Sea-side resorts along the coast bring consumers, who are willing to pay the highest prices for good lamb and mutton, to the farmer's very door. It would seem that a modicum of business enterprise would induce the farmers to respond to this demand, at least rather than sell their hay, but the "good old way" of doing things is preferred to the extra dollars.

An Old-fashioned Dairy.

In this scrupulously neat and well scoured dairy, the only modern innovation was a Blanchard churn, unless indeed an ice-house beneath might be counted as one. Long rows of shining tin pans occupied the shelves, and in the cheese-room there was pleasing evidence, that the art and mystery of cheese-making in private dairies was not altogether a thing of the past, and like spinning and weaving turned over to the factories. Here were twenty to thirty-pound cheeses of all ages, full milk, half-skim and sage, of excellent flavor and texture, curing, ripening, and keeping, no doubt finding an appreciative market, a few at a time, among the hotels, which in the hight of the season take the milk, so that cheese-making is unnecessary. I could but think what an amount of hard labor would be spared that hard-working, thrifty housewife, if only the modern practice of deep setting could be introduced. The view seems to prevail, that though this may be very well adapted to factories, it is not the thing for private dairies.

Treatment of Milk in the Household.

Thousands of country people, who have had to do with milk all their lives, have no idea that modern notions about handling milk are in any way applicable to their circumstances, or could be employed by them if they wished without great expense. The fact is however quite the contrary. The butter comes with difficulty in cold weather, is lardy, and of a poor flavor. It meets with a poor market anywhere, and is only taken at the country store in order to secure the housewife's trade for groceries. She certainly takes pains enough—good, thrifty soul. The milk is set in flat pans, brought in from the milk-room to the store-room for fear of its freezing, and even brought out at night into the living-room to keep it at a proper temperature. Nevertheless the butter is rarely even passably good, and there is a great deal of work about it. So the good people let the cows go dry in winter, simply to get rid of the care of the milk, and of milking in cold weather. Now the fact is, the cream will rise in deep vessels more perfectly and of better quality in twelve to twenty hours at a temperature of forty-five degrees, than it will in two days in flat pans at a temperature of sixty degrees. Flat pans in common use hold five or six quarts. The deep milk "coolers" hold about sixteen to eighteen quarts. They may be set or floated in a small pool, or box, or tub of water, and only three milkings are ever in the pool at once, while the milk should stand in the flat pans two days or more.

To set thirty quarts of milk two coolers would be needed, as against five pans and probably six, required on the old plan of setting. The washing of this quantity of tin ware is a great item, and considering the little satisfaction given by the butter, it is no wonder that the small farmers let the cows go dry all through the winter months. It is a very easy thing to arrange a "pool" for a few coolers. I have a dry-goods' box set close to the out-cropping of a spring. The water fills this to the hight of twenty inches. In it tin-coolers holding sixteen quarts of milk each will float. All the water from the spring flows through the pool, and rapidly enough to change it completely about once in ten minutes. A larger box is placed over the pool, and this has a lid which does not close perfectly tight, so that ventilation is secured. Ventilating covers are placed upon the cans. We find it works well. The milk remains twenty-four hours in the spring, and the skim-milk is blue enough.

In the winter a half hogshead tub in the outside kitchen held the coolers. This was covered with a close cover and a blanket or two in very severe weather, just to keep the water from freezing too much. Last winter we used a Moseley's Cabinet Creamery, which proved very satisfactory and convenient. A little ice in the water is a good thing. The water must be changed frequently, especially if any milk is spilt into it. In winter it is just as well to skim at twelve hours as at twenty-four. The amount of work thus saved by using some deep-setting plan is very great, besides the cream is sweet and pure, having absorbed no odors from the living-rooms, or from the cooking. The skim-milk is sweet and good for every household use, and the butter comes quickly and well, and is worth something when you get it.

Fish Ponds—Carp.

Some of the ponds which I described are very deep, others are shallow and proportionately warm. The deep ones are probably adapted to black bass raising, and the shallow ones, many of which have a fringe of swampy land and shoal water filled and covered with confervous vegetation and swarming with minute animal life, are certainly admirably adapted to the growth of the German carp.

These fish are said to grow to a large size only in warm waters in which subaqueous vegetation abounds. This is their chief food, and the warmer the water is the better they thrive. I took the temperature of some of these ponds, and to my surprise found it at about ten o'clock in the morning of a partly overcast and altogether hazy day, and after a week of unusually rainy and cool weather, to range from seventy-six degrees in the coolest and deepest spots which I could conveniently reach with a thermometer attached to a ten foot pole, to eighty-six degrees. Eighty-three degrees to eighty-six degrees were, I found, the prevailing shoal-water temperatures. I shall be disappointed if these ponds do not prove admirable places for European carp. Great numbers of these have been distributed free by the Government, as the *American Agriculturist* has repeatedly stated.

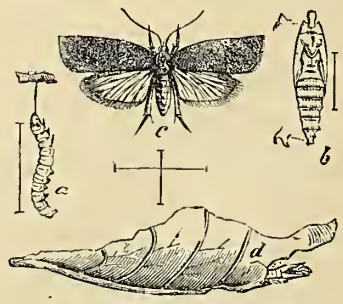
The carp, as is well-known, is not a native fish of this continent. It is easily domesticated, is very hardy, and easily reared, and bears the winter well in waters which do not freeze over too solidly and remain so all winter. They need occasional thaws to enable the water to absorb oxygen from the air, or for some such reason. The weather along the coast being much more variable than it is inland, would probably give open weather and thaws enough to keep them in the best condition. They do admirably in some of the Long Island ponds, which, so far as I can judge, are not so well adapted to their culture as these.

The carp is highly valued in Germany, and as cooked and prepared by the Germans, is very good eating. It is, however, far from a first-class fish, and will be despised by our shore-dwellers, who have been brought up on blue-fish, black-fish, sea-bass, striped-bass, all first-class fish, to say nothing of porgies, weak-fish, and mackerel, which are so abundant they are not valued as they should be. Nevertheless the carp will sell well. Some are now finding their way to the New York markets, and are eagerly sought for. The fish usually sold as carp to the unknowing is a chub-sucker, caught in the great lakes, a soft-fleshed fish, not nearly so good as the German carp, and quite bony.

My visit to the farmers of the Rhode Island Coast has taught me many things that is not easy to set down on paper. Visiting may be profitable in more ways than one.

The Leaf-Rollers of the Apple.

H. D. Barber, Bergen Co., N. J., sends us some apple tree leaves which are curled up at the edges. This is evidently caused by one of the leaf-rolling caterpillars, which drew the leaves together. There are several leaf-rollers, which work upon the leaves of our fruit trees, sometimes young apple trees ap-



APPLE LEAF-ROLLER INSECT.

pear as if the foliage had been scorched and curled. Upon examination this will be found due to a small "worm" or caterpillar, which has drawn the leaves together to form a shelter under which it may feed unobserved, and where it may form a chrysalis and undergo its changes. The caterpillars are very lively, and when alarmed let themselves down by a thread, as shown at *a*, in the engraving. The leaves are folded up to furnish a hiding place, as shown at *d*. When full-grown, the caterpillar forms the chrysalis, *b*, from which, in time, comes forth the dark-gray moth, *c*. The lines in the engraving show the actual sizes. The insect here figured is *Tortrix Cinderella*. There are several other species of the genus *Tortrix* with similar habits. Hand-picking, at its first appearance, is the best remedy.

Law for Farmers—Hiring Farm Help.

Hiring Minors.—A great many farm hands are minors, under the age of twenty-one. Such persons cannot make a contract, which will be binding upon them, except for necessaries. Because of their inexperience in the sharp conflicts of business, the law relieves them from the obligation of keeping their agreements if they wish to avoid them. Consequently if the farmer hires a hand, under twenty-one, to work one year, or any definite time, and the hand leaves just before harvest, without legal cause, or simply because he can get more wages elsewhere, the farmer cannot keep any of his back pay, or in any way get damages for the minor's breach of contract. Under such circumstances the minor will be entitled to the amount due him at the rate he hired, or, if he thinks he hired at too low a rate, he can throw up the contract entirely, and recover from his employer what his services are actually worth.

There is another consideration with respect to the hiring of children, more important than the foregoing. Parents, being under obligation to support and care for their children, are entitled to their services until they are twenty-one years old; or, if the children work out, they are entitled to their wages until that time. When therefore the farmer hires a hand under twenty-one, he must see to it that he pays the wages to the party to whom they belong; otherwise he may have to pay them twice. Unless the child has been emancipated, that is, has had his "time" given him, payment to him will not generally prevent the parent from collecting payment again. If the child falsely represents himself to be of age, or emancipated, such fraud will not prevent the parent from collecting his wages, or the value of his services.

A child may become emancipated by agreement between himself and parent, by the parent's casting him off to shift for himself, by the parent's absconding to parts unknown, or by the parent's becoming so poor as to be unable to care for the child. In all of these cases the child becomes entitled to his wages, may sue for them if necessary, and recover the amount due him at the rate he hired, or may throw up his contract and recover the actual value of his sevices. There is a growing tendency among American Courts to favor children who are trying to earn an honest living for themselves. This tendency is in keeping with the spirit of our free institutions, and the child will generally be given the right to his wages whenever there is any show of authority for it. The Courts of some of the States have gone so far as to hold that where the parent permits his child to go and hire out by himself, and to receive his wages without objection, that the parent then loses his rights in the premises, and payment to the child discharges the debt. The statutes of some of the States have regulated the matter by providing that unless the parent gives notice within a certain time to the employer that he claims the minor's wages, he loses his right to them. In New York, notice must be given within thirty days of the date of hiring.

Farm Apprentices.—Apprentices are persons "bound" to another to learn a certain trade or business. They are more common in the mechanical trades than upon farms, but the law governing them is equally applicable to all kinds of business. A boy may be bound out upon a farm until he is twenty-one by a written instrument called "Articles of Apprenticeship," which must be entered into by the minor and his parent or guardian, or by the minor with the written consent of his parent or guardian, and which then becomes binding upon him and upon his master, until the apprenticeship expires. If either party fails to live up to such articles, he becomes liable to the other for the damage so caused. Such articles must conform to the local statute governing the matter, be in writing, and under seal, must generally be made in duplicate, and in some States recorded. It is the duty of the master to instruct the apprentice in all the knowledge of the craft or business which he has undertaken to teach him, to watch over his conduct, give him good advice, set him a good example, be kind to him, employ him only in the trade he is to learn, and keep all the covenants undertaken by him in the articles. It is said he may moderately chastise him if necessary, but here he should let his moderation be known. It is the duty of the apprentice to obey the master's lawful commands, care for his property, promote his interests, learn the trade or business, stay the term out, and perform all the covenants undertaken by him in the articles. If the apprentice works for third persons the master is entitled to his wages or value of his services just as a parent is in case of a minor. It is the duty of the parent or guardian to inquire into the treatment of the apprentice, and to defend him from all cruelty, neglect, or breach of covenant on the part of the master. There are in most States statutory regulations for the binding out of orphans and poor children by certain public officials. In such cases, such officials stand in much the same position as parents or guardians.

Good and Bad Road-Building.

Nothing is more destructive to horses and vehicles than a road full of ruts and loose stones. A single stone, which might be removed from the road-bed in a half minute or less, often remains and



Fig. 1.—BADLY MADE ROAD-BED.

is struck by a dozen wagons each day, for perhaps a year. Many of these loose projecting stones come up from a lower stratum of the road-bed, where they were improperly placed. Figure 1 represents a section of a faulty newly-formed road-bed. A layer of irregular stones of various sizes is placed a few inches below the surface of the intended road-bed, and a covering of sand and clay scattered over it.



Fig. 2.—BAD ROAD-BED AFTER HEAVY TRAVEL.

The wheels of a heavily-loaded vehicle, quickly cuts through to the layer of loose stones, and shortly the roadway presents the appearance shown in figure 2. The stones, large and small, are constantly being worked toward the surface, where they form annoying obstructions. Figure 3 shows a superior method of arranging the material for a good road-bed. Durable stones from four to six inches in diameter, are set in the bottom by hand,



Fig. 3.—ROAD-BED WELL MADE.

with their largest sides downward, and secured in place by smaller stones above and between them, thus forming a compact layer of six inches or more in thickness. With such a foundation, and a suitable covering of fine broken stone, a road-bed is formed that will be smooth, hard, and durable. Road-making needs to be a permanent improvement, or else it is seldom a paying investment.

Look to the Labels Now.—The labels attached to the trees are not intended to be permanent. When the trees are planted with these, by the time they begin to bear, the labels will be lost or can not be read. If the wire to these labels is strong, the tree, as it grows, will be constricted by it, and a branch, or sometimes the whole top, be killed. Those who have planted trees with the nursery labels still attached, should lose no time in replacing them by others. Among the many kinds of labels, one of the best is of sheet zinc, cut in the form of a long, tapering wedge, an inch or so wide at the base, and six, eight, or more inches long. The name of the variety is to be written upon the broad end of the label with a common lead-pencil, and the narrow end loosely coiled around a small branch, in such a manner that it will yield as the branch enlarges. The writing in pencil on the zinc label is very permanent; we have known it to be legible after an exposure of twenty-five years.

Recent Experiments in Crop-Feeding.

Paul Wagner has compared the feeding capacities of peas and barley, by growing these plants in zinc vessels and under various conditions. The cans were filled with thoroughly mixed, sifted soil, and the contents differed only in the manure supplied. There were eight vessels in the series. The manures added to each can is shown in the subjoined table:

No.	Manuring.	Crop Peas.	Barley.
1	Nothing	100	100
2	Nitrogen	104	113
3	Potash	100	107
4	Phosphoric Acid	126	113
5	Phosphoric Acid and Nitrogen	132	146
6	Nitrogen and Potash	102	121
7	Potash and Phosphoric Acid	147	126
8	Potash, Phosphoric Acid and Nitrogen	151	181

Each series was duplicated, and the above is the average result. The crop with no manure was taken as one hundred. Nitrogen, as nitrate of soda, was added in each case at the rate of thirty-five pounds per acre; potash as chloride, seventy pounds, and phosphoric acid as superphosphate, eighty-seven and one half pounds per acre. By comparing the cans having nitrogen with the others, it is evident that nitrogen had very little effect upon the peas, while with the barley the results are remarkably beneficial, ranging from thirteen per cent when the nitrogen only was added to fifty-five per cent when applied in combination with potash and phosphoric acid. Manuring with potash and phosphoric acid brought a gain of forty-seven per cent to the pea crop, only a little less than when the nitrogen was added (No. 8). The soil nitrogen was sufficient for the growth of the peas, while it did not supply the needs of the barley plants. Stated in another way, the facts are still more striking: The potash and phosphoric acid brought twenty-six per cent more dry matter, and this gain contained .06 grain of nitrogen. The addition of .2 grain of nitrogen in the soda salt gave an increase of eighty-one per cent of dry matter, and .18 grain of nitrogen. It is seen that nearly all the nitrogen was recovered in the crop.

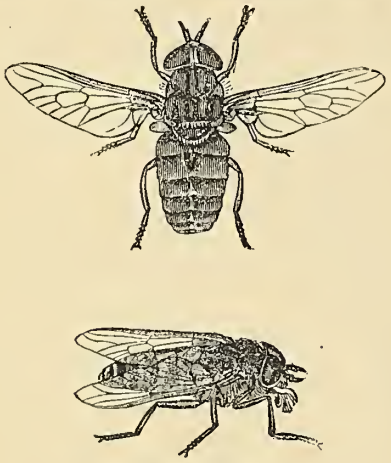
These experiments show, that peas are much better able than barley to assimilate the nitrogen of the soil. The pea crop in the experiments contained between three and four times as much nitrogen as the barley plants, but this does not indicate that peas should have more nitrogenous manure than barley. Peas can obtain their supply of nitrogen from ordinary soil, and respond freely to applications of potash and phosphoric acid. Barley, on the other hand, though needing comparatively little nitrogen, obtains it with difficulty, and is greatly benefited by nitrogenous manures. These experiments do not agree with the idea that crops should be manured with those elements of plant food abundantly found in them by analyses.

Peas are closely related to clover, both belonging to the legumes, and barley is a first cousin to wheat. The facts here presented accord with those determined by experience, experiment, and analyses regarding clover and wheat. Clover does not respond quickly to nitrogenous manures, though containing a comparatively high per cent of nitrogen in its composition. Wheat, requiring only a little nitrogen, is not able to obtain that little easily, and is much benefited by the applications of soluble compounds of nitrogen. It is easy for clover to get its large amount of nitrogen, while it is difficult for the wheat to obtain its small per cent of the same element. The conclusion here obtained is opposed to the use of the so-called special manures made for any particular crop.

A Wooden Bit for Sucking Cow.—Mr. David Strang, Lincoln Co., Tenn., writes us that some time ago he read a description of a "bridle" to prevent a cow from sucking herself. It was made of a piece of gas pipe. Recently he had use for such a device, but was twenty miles from any gas pipe. He punched the pith out of a stout section of an elder stem, and ran a large wire through it. The ends of the wire were fastened to the headstall.

The Ox Gad-Fly.

The genus *Tabanus* includes several flies with powerful biting and sucking mouth-parts. Horses and cattle are sometimes worried to death by the harrassing, painful bites of these pests. They only do harm in the perfect or fly state, by drawing blood from their victims. The true gad-fly has nothing to do with producing the maggots in the



THE OX GAD-FLY.

backs of cattle, or the bots in the internal organs of horses. The larva of the gad-fly lives in the earth, upon decaying vegetable matter, and possibly on snails, and the young of other insects. The proboscis of the gad-fly contains an organ having sharp lance-like points, with which the fly pierces and draws blood. Like the mosquito, the male gad-fly does not goad its victims, but lives on the sweets of flowers, the female only being provided with the piercing and sucking apparatus above mentioned. The engraving shows a back and side view of the Ox gad-fly, somewhat magnified.

Shropshire and Hampshire-Down Sheep.

The Shropshire and Hampshire-downs are two essentially modern breeds of English sheep. The desire to improve all kinds of live stock took possession of progressive English farmers during the latter part of the eighteenth century. The Wiltshire sheep were a hardy, horned, white-faced breed, which, when crossed with the improved hornless, dark-faced, well bred Southdown, became a profitable market breed, especially for raising early lambs, and their wool was also greatly improved. This cross, with a dash of Cotswold or Leicester blood, is the foundation of the Hampshire-downs. They had been bred for black or dark faces and legs which were Southdown characteristics, but when Southdown breeders found the Hampshires competing with them in the market, and successfully, from their larger size, they changed in a measure the fashion of color in their legs and faces, now-a-days preferring the grizzly-brown rather than very dark. The Hampshires are larger, coarser, and not so well formed as the Southdowns, and their wool is longer and coarser, doubtless from the long-wool cross. They mature early, and are hardy and profitable. It takes a good judge to tell the difference in the quality of mutton, but the smaller Southdowns make the best.

The Shropshires were produced in a similar way from the old Morfe-common breed, but contain more long-wool blood. In size, they are fully equal, if not superior to the Hampshires, and are their equals in easy fattening, early maturity of lambs and profitable fleeces. The wool being fine, though of longer staple and more glossy than the true Downs. This breed seems now to be well established, and rapidly gaining in popularity. It has spotted or grayish faces and legs, with a carcass somewhat resembling the long-wools. We are asked: "Which of these two breeds is likely to become the most popular?" That depends entirely upon the breeders. These breeds do not stand still, even for two or three years. Energetic and intelligent breeders are all the time improving their flocks by selection, and by crossing with the best rams they can buy or hire. Thus there are constant minor changes which affect the breeds, while the efforts of prominent breeders are to make their own breed fashionable, or at least the more prominent. It is therefore quite impossible to predict the popularity of any one of the established breeds of cattle, sheep, pigs, or poultry, as it depends much more upon the success of breeders in their tactics than upon the merits of the breed itself. The mutton of all these improved mutton-breeds, both middle-wools, downs, and long-wools, sells much better than that of the fine-wool breeds.

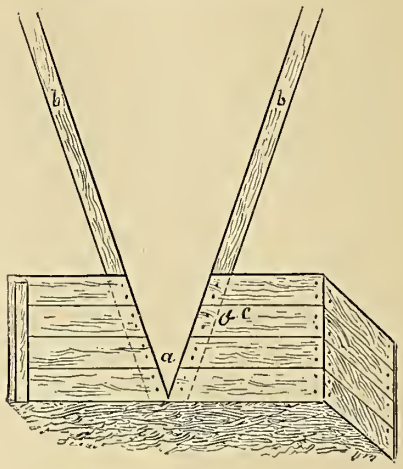
A Rare, Useful, and Ornamental Grass.

The Tall Oat Grass, or Meadow Oat Grass is a species that has given the greatest satisfaction wherever it has been tried, yet we rarely see it in cultivation. It is admitted on all sides to be vastly superior to Timothy, yet our farmers have been so long accustomed to that grass, they will not give it up, even for a better one. The tall oat grass was formerly placed in the same genus with the Oat (*Avena*), but as it differs in the structure of its spikelets, it is now called *Arrhenatherum*, a name that signifies that the male floret only bears a bristle or awn, in which particular it is unlike the oat. The grass is usually from two to four feet high, though on rich land it reaches five to seven feet. It starts early in spring and continues its growth until late, and is noted for the abundance of its aftermath. It is equally valued for hay, and as a pasture grass. The late Mr. Howard said of the tall oat grass: "It deserves to be placed at the head of the winter grasses for the South....The amount of green food yielded by this grass during the winter is greater than that of any other grass." For soiling, it allows of three abundant cuttings



THE TALL OAT GRASS.

during the summer. This grass has been tested by experienced farmers in New York, Pennsylvania, and Virginia, all of them assigning to it a greater value than Timothy. It may be sown upon wheat in the fall, or may be sown by itself in early spring. The seed is very light, and not less than two bushels should be sown to the acre. The tall oat grass is one of the kinds cultivated for ornament in England. If cut early and dried in the shade, the panicles are very pleasing. Besides the names already given, this grass has been called "Peruvian-grass," and "Grass of the Andes," names to which it has no claim, it being a native of Europe.



A FODDER-SAVING MANGER.

Manger for Cattle.

Mr. J. W. Darrow, Columbia Co., N. Y., sends us a sketch of a feeding manger, shown in the engraving. The bottom of the manger may be slightly elevated above the stable floor. The front of the manger is boarded up with the exception of a V-shaped opening four inches wide at the bottom, and two feet at the top. The side-pieces, *b*, *b*, are three by four-inch scantling; a ring, *c*, furnishes a suitable tying place for the halter. It is impossible for a cow to throw hay out under her feet when feeding at a manger of this kind. The quantity of fodder wasted, when fed from a poorly constructed manger, amounts to much more, in a single year, than the cost of one properly built.

Mushroom Growing.

Mushrooms may be grown in almost any place that furnishes a rich and moist bed, and sufficient heat for the subterranean portion of the plants. Mushrooms have no use for sunshine. They are very extensively grown in large caves near Paris. Any low, propagating house, or even a cellar, the air of which can be kept charged with moisture will answer. Well fermented stable manure is best suited for furnishing the nourishment and required artificial heat for the plants. From one-fourth to one-third of dry loam should be mixed with the manure. The bed needs to be from a foot to eighteen inches thick, flat, and thoroughly packed. When the temperature of the bed is about seventy degrees, usually a week or ten days after being made, the spawn is introduced. Two inches of the surface of the bed is removed, and pieces of the spawn are scattered over the top, patted down with a spade, and the surface material returned. By spawn is understood the fine filaments of the mushroom, that have been dried in "bricks" of earth. In somewhat the same manner yeast is preserved in a dry state. The subsequent work of the mushroom bed will be the gathering of the crop, adding liquid manure occasionally, and keeping a moist atmosphere and an even temperature.

Mushrooms have been grown on the floors of cellars in conical beds, in tubs and casks, in stables, railway arches, and in beds in the open ground. In short, mushroom-growing requires no greater skill than that possessed by the ordinary gardener directed in a particular direction. The mushroom spawn is usually kept for sale by seedsmen, and a small amount for a trial bed can be procured at little expense. There is always a quick market for fine mushrooms in the large cities.

Our Most Valuable Insecticides.

In answer to several inquiries for a list of the leading insecticides we say, that there are six substances now generally in use, viz: tobacco, soap, helleborc, arscnic, petroleum, and pyrethrum. The effective part of tobacco is the narcotic principle called nicotine. The vapor of tobacco is found more effective and less injurious, than either tobacco smoke or a deeoction of the stems. The tobacco stems are used like a mulch in the garden, or scattered on the green-house plants. Soap is one of the oldest remedies. Hellebore, the root of *Veratrum album*, ground to powder, is useful for only a limited number of insect pests. It is the best remedy for the currant worm, and most of the saw flies. Arscnic is employed as Paris Green or London Purple, and is very effective wherever it is safe to use the deadly poison. Paris Green became popular as a remedy for the Colorado potato beetle. London Purple, an arsenical insecticide of recent introdnetion, is a refuse material in the manufacture of aniline dies. Petroleum is now being largely used in destroying insects, either in the crude state or as kerosene. Two parts of the substance are thoroughly mixed with one of sour milk, and afterwards diluted with water before spraying upon the infested plants. Pyrethrum has beeu in use as an insecticide for many years, under the name of "Persian Insect Powder." It is the pulverized flowers of several speeies of the genus Pyrethrum—members of the great sunflower family of plants. A species of Pyrethrum is now being largely grown in California, and furnishes "Buhach," the eomparatively new insecticide known in the trade. The pyrethrum powder acts only by by eontaet, and needs to be applied directly to the insects. Unlike the arsenical eompounds, it is harmless to man and the larger animals. Other insecticides employed to a limited extent are sulphur; bi-sulphide of carbon, carbolie acid; soluble phenyle; camphor; coal tar and gas lime.

A New Method of Preserving Grapes in Winter.

We have already mentioned among other methods of preserving grapes, one that is practised in Europe. The clusters are left attached to the canes, and the lower ends of the canes are inserted in bottles of water, the bottles being so inclined that the clusters will hang free, without touching them. This method, whieh prevents the berries from shrivelling, is very successful in Europe with the exotic varieties of grapes. Our native grapes differ greatly in their keeping qualities, and while it may not succeed with all, we have little doubt that this method will preserve some varieties, and we have already suggested it as worthy of trial, if not for grapes to be marketed, at least for those for family use. An English fruit-grower has improved upon the use of bottles, and gives his apparatus in

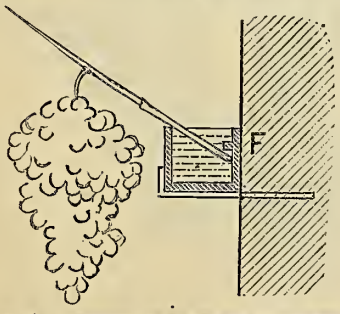


Fig. 1.—TROUGH FOR GRAPE CLUSTERS.

the "Gardener's Chronicle" (Eng.) Instead of bottles, he makes use of troughs of glazed earthenware, which allow of more rapid handling and economizes room. The troughs are some seventeen inches long and about four inches in width and hight. Along the sides, on the inside of the troughs, and at a short distance below the upper edge, is a projecting ledge, under which the lower end of the cane is caught while it rests upon the opposite edge of the trough, and allows the cluster of grapes to hang clear. These troughs may rest upon brackets driven into the wall of the fruit room, as in figure 1, which represents a trough in section, showing the ledge, and the manner in which the

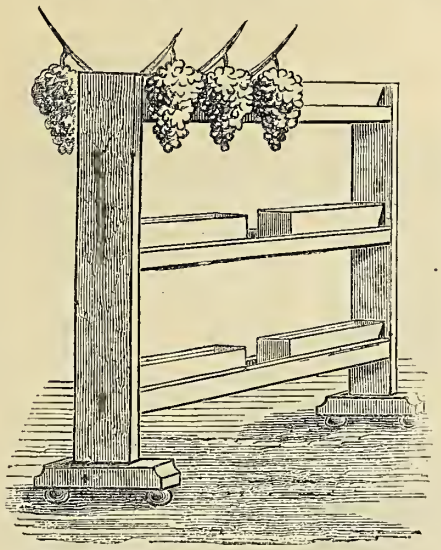


Fig. 2.—RACK FOR GRAPE TROUGHS.

cane is supported. The troughs are also placed upon racks as in figure 2. Figure 3 shows a section of a single one of the troughs upon the rack, and allows the manner of supporting the canes to be seen. The troughs used here have the ledge in the center at *F*; this allows canes to be placed upon both sides, as shown in figures 2 and 3. Of course water must be supplied as it evaporates from the troughs, and the temperature of the room should be kept as low as practicable without freezing. Those who wish to experiment upon keeping our grapes in this manner will probably find bottles the cheapest at first. Should the method we have here described be tried, wooden troughs, carefully put together, and thoroughly coated with shellac varnish, may be used, at least in the experiment, as a substitute for those of earthenware. The clusters should not touch one another.

Is Cold Water Injurious to Plants?

Those who study works on horticulture by different writers, will discover many opposing views in respect to the modes of caring for, and the treatment of plants. The proper temperature for water when applied to plants, has been frequently discussed by different writers; some contend that cool water, just drawn from a well or cistern, should never be showered upon plants, but that it should first be heated to the temperature of the room in which the plants are standing. Others, with equal zeal, claim that cold water will not injure the plants in the least, contending that the water will assume the right temperature before injury is done the plant. Now which is right? We have experimented in this matter to a considerable extent, in order to satisfy ourselves as to which of these two views is correct. In the month of December we took from our collection twelve large geraniums, and placed them by themselves in the conservatory; six of these we watered with cold water, drawn from a hydrant pipe at the temperature of forty-five degrees, and the other six were supplied with water from a barrel standing in the conservatory, and was of the same temperature of the house, that is from sixty degrees to eighty degrees. The plants watered with the cold water gave little if any bloom throughout the winter, while the six geraniums watered from the barrel grew finely, and bloomed profusely.

Always water your plants in winter time with luke-warm water, if you would have a profusion of flowers, and thrifty-growing plants. The water should be of the same temperature as the room or place in which the plants are kept. There is no theory about it, this is a practical fact.

Protecting Tree Trunks from the Sun.

Dr. Samuel Hape, a prominent horticulturist of Georgia, considers the afternoon sun as having a marked injurious effect upon the southwest side of the trunks of fruit trees. The peach, when trimmed high, suffers greatly from this cause, especially in the southern climate. The bark dries up, and unless timely protection is provided, the exposed trees slowly die from the effects of the fiery rays of the afternoon sun. The warming influence of the morning hours is sufficient to overcome the cooling action of the night, and preserve the health of the tree. The effect of the afternoon sun is very marked in blighted pear trees, the southwest side being usually first affected. Trees that are grown on hillsides sloping towards the east and southeast, are much less subject to the mysterious and deadly blight. Currant, gooseberry and raspberry plants are in like manner affected by exposure to the bright sun of the afternoon. Experiments in boxing trees, especially the cherry, have been very successful. It is only necessary to protect the southwest side of the tree trunk. Dr. Hape suggests two boards nailed together lengthwise by their edges, and placed on the west side, as being sufficient to protect the tree. Where possible, trees may be shielded by being planted on hillsides sloping to the southeast. Low limbs will furnish much shade to the trunks, and may be obtained by proper pruning. The small fruits—currants, gooseberries, raspberries, etc., can be easily protected from the afternoon sun by being planted on the east side of a fence, or other object yielding shade. This matter of the sun-killing of fruit trees demands the attention of all practical fruit-growers.

Wintering Plants in Cellars.

Many plants, such as agaves (century plants), oleanders, large cactuses, etc., that have grown too large to be accommodated in the sitting-room or conservatory, can be successfully wintered in any moderately dry, frost-proof cellar. After placing these large plants in the cellar it will not be necessary to give them any water, the object being to keep them dormant all winter, which can be done by keeping the soil as dry as possible, but not so dry as to allow the plants to shrivel, or become withered. Large plants of the kinds mentioned, often form desirable ornaments during the summer time. It is impracticable, in most cases, to bring them into the house in winter, but they can be kept for years by cellaring through the winter as stated. Large geranium, salvia, and heliotrope roots, and even tea roses, and carnations, can be kept moderately well in the cellar by trenching them in dry, or moderately moist sand. Thus many choice specimens of these plants that we are loth to

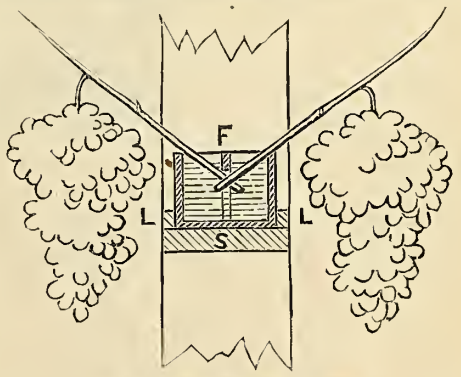


Fig. 3.—SECTION OF TROUGH.

pull up and throw away when winter approaches, can be successfully kept over until the next season. It is a needless expense to purchase a stock of new plants for the garden every year, when we can winter many of the old ones in this simple and inexpensive manner. The leaves of all deciduous plants should be removed before they are put away in this manner. The foliage should remain on the oleanders and carnations through the winter.

Notes From the Pines.

I have a fondness for the much divided foliage of the Aralias, which, as shown in our native Hercules Club (*Aralia spinosa*), produces fine tropical effects. Several years ago I set out a number under different names, but which all proved to be forms of *A. Chinensis*. Even one that came to me under the all-sufficient name *Dimorphanthus Mandshuricus*, turned out to be but a variety of the Chinese



THE NEW OREOPANAX.

Aralia. I planted them all, and now wish they were back in Mandschuria and China. A recent "Revue Horticole" gives an engraving of one of the many new plants brought home from Central America by M. Edouard André, *Oreopanax Epresmilianum*, an own brother of the Aralias, and as it is likely to soon find its way to this country, the engraving may be properly reproduced. Its large divided leaves, of the richest green, give it a highly ornamental character, and Mr. André expresses the hope that it may soon be found in all the gardens near the coast in France. Beautiful as it evidently is, if it has the spreading propensities of the related Aralias, I could not be induced to plant it. The few Aralias I have are now everywhere that they are not wanted. One sent its shoots under ground for twenty feet, and at that distance then came up in a rose bed, which they bid fair to convert into an aralia bed, and the shoots appear in all sorts of unexpected places elsewhere. The aralias are not the only plants which illustrate the adage: "Too much freedery begets despise." I trust that the new Oreopanax is not a spreader, but, to say the least, it comes of a bad family.

MANNING'S ELIZABETH PEAR.

Many years ago the late Horace Greeley offered a prize for the best early and late fruits for general cultivation. Mr. Greeley's object was to afford those who knew nothing about fruits, a list to aid them in making selections for planting a few trees. The choice for the best early pear was Manning's Elizabeth. This caused general surprise. I was tolerably familiar with pears, but I did not know Manning's Elizabeth. That I might make her acquaintance, I planted a tree. I now wish that I had planted many trees. The tree bears an abundant crop yearly. The fruit is below medium size, is of great beauty with its coat of yellow, carmine, and russet; quality best, and is ripe the middle of August. This award was made some twenty years ago; I wonder if any more trees of Manning's Elizabeth have been planted since the award, than before it? The pear has but one fault—its small size, but this may be remedied in part by severe thinning of the clusters of young fruit.

THE VARIEGATED ROSE OF SHARON.

Among all the shrubs with variegated foliage, but few hold their beauty during our hot summers. One of the best and most permanent shrubs of this kind is the Variegated Rose of Sharon (*Hibiscus Syriacus*, var.) The one I have in mind originated with the late Robert Buist. Its leaves are margined with a very clear white, while the green portion is very dark. The flowers are so very double that they fail to open. It grows readily from cuttings, and bears severe pruning. It may be used as an ornamental edging, or as an effective line in ribbon planting. It is perfectly hardy.

HYACINTHUS (OR GALTONIA) CANDICANS.

Some European florist exhibited a bed of this interesting bulb in full bloom on the grounds of the Centennial Exhibition, where it attracted much attention. The next year I saw the plant in the grounds of a gentleman who is widely known as a horticulturist. I asked him if the bulb was hardy. "Probably not," was the reply.—"Have you tried it?"—"I have no time to waste in testing the hardiness of any plants from the Cape," was his answer.—Being from the Cape, he assumed that it could not be hardy. I left out a part of my bulbs the next winter, and found that it was hardy. Plants from warm countries often unexpectedly prove quite hardy in our severe winters, and plants that naturally grow in swamps, often flourish much better in the drier soil of the garden than they do in their native swamps. Apropos of swamp plants. There is here a row twenty feet long or more of the Cardinal Flower (*Lobelia cardinalis*) in a dry, sandy place. It is a mass of scarlet that can be equalled by but few exotics.

THE SUNFLOWER CRAZE.

The craze which started a few years ago, has not yet died out. I still see ladies using the common sunflowers as dress ornaments, or carrying them in place of bouquets. The plants are more frequently seen in gardens than formerly, and I recently passed a house where sunflowers were growing in pots. If people wish to make much of sunflowers, it seems a pity that they should select the common annual species, *Helianthus annuus*, the coarsest and ugliest of the whole genus. There are some perennial species that are really handsome while growing, and better than the common annuals are for cut-flowers. Among the best are the graceful sunflower (*Helianthus orgyalis*) and Maximilliau's sunflower (*H. Maximilliani*), which are six or eight feet high, and when well grown, are fine ornamental plants. For cut flowers, the double kinds, especially that known as *Helianthus globosus fistulosus*, are vastly superior to the common one, which is only fit to grow for its seeds to use as chicken food. The first two kinds I have named, being perennial, the clumps increase year by year in size and beauty. Their foliage is pleasing.

A New and Brilliant Poppy.

The flowers of the Poppies are very short-lived, both of the annual and perennial kinds. In spite of their fugacious character, they have in some kinds a brilliancy of color, and in others a rich, crape-like texture, hardly equalled by other flowers. Poppies are not suited for cut flowers; but most useful for making brilliant the bed where they grow. The Perennial Poppies, such as *Papaver orientale* and its relatives, if given a back-ground of dark green, may be used with fine effect. The Annual Poppies, now less frequent in our gardens than formerly, are so difficult to transplant, that the only satisfactory method of treating them is to sow a bed with the seeds, and if the plants appear too thick, thin them where at all crowded. In thinning, cut or pinch out the superfluous plants, instead of pulling them, as that would disturb the roots of those that remain. There can scarcely be a more brilliant sight than a bed of the recently introduced Shade-loving Poppy, *Papaver umbrosum*. The engraving gives a single flower three-fourths life-size. The plant is from one to two feet high, with hairy stems and much-divided pale-green leaves. The flowers, sometimes four inches across, are of the richest scarlet, which is made to appear still more intense in contrast with the large black blotch at the base of each petal. The flowers last but a day, but they are produced in such rapid succession that a bed presents a continuous mass of bloom. If the plants, when young, are pinched at the top, it will make them branch, and produce more numerous flowers. Anything more brilliant than a bed of this poppy, framed in the grass of a lawn, can hardly be imagined. It is



THE SHADE-LOVING POPPY.

claimed by some that this is a variety of the well known Corn Poppy (*P. Rhœas*), of Europe, which is itself an exceedingly brilliant flower, though a weed in grain fields of England and the Continent. The Corn Poppy has given some double varieties that are very showy. Some varieties of the common garden or Opium Poppy are exceedingly double, and present a great variety of colors. If treated as above, they may be used on the lawn with fine effect.

Fall or Holland Bulbs.

THOMAS SHEEHAN.

That class of plants known as Fall or Holland Bulbs, includes hyacinths, crocuses, jonquils, tulips, narcissuses, snow-drops, and several less known kinds. These bulbs are grown in Holland in immense quantities, the soil and climate of that country being peculiarly favorable to them, and they are annually imported into this country in great numbers. Autumn is the time to set them out; any time from the first of October to the middle of December. Tulips, jonquils, narcissuses, and hyacinths, should be planted four inches deep, and eight inches apart each way; the snow-drops and crocuses two inches deep, and six inches apart. All of the above named bulbs are entirely hardy, and will stand in the ground without any surface protection through the severest winters. Some go to the trouble of covering the surface with leaves or other litter for protection, but this is entirely unnecessary. A very pretty effect may be had where one has a large number of bulbs, by selecting the different colors and planting each color in a row by itself, so that when they blossom, there will be ribbon-lines of red, white, blue, or yellow, as the case may be. Or, if one has a large number of beds of different shapes, cut so as to form a design of some kind, each section may be planted with a different color (hyacinths are the best for this work), and when all come into bloom in April, the effect will be most charming. We tried this "massing" of the differently colored bulbs one year, in a "design" of one hundred different sections of all conceivable shapes, planting the bulbs so that when in blossom, the whole would present a harmonious effect. It would be hard to conceive of a more attractive sight than that presented by all those bulbs in full bloom in early April, when every thing else looked barren and cheerless. They were admired by every one who saw them. Bulbs of this character bloom and pass away in season to allow room for other plants to be set out. These may be set between the rows of bulbs, and not disturb them in the least. Any of the above named bulbs are especially desirable for house culture in winter. Make an oblong box, say four feet in length, fifteen inches wide, and twelve deep, fill this with fine, rich loam, then plant a row of hyacinths in the centre, and on each side of this plant a row of either snow-drops or crocuses, water thoroughly, and set away in a dark, cool place. In three weeks remove the box into the full light, water freely, and they will grow and bloom throughout the winter. If the box can be set near a front window, the flowers will make a pretty display.

These bulbs can be started in pots, or glasses filled with water, and treated in the same manner as stated above. Place a single bulb of hyacinth in each pot or glass. Four-inch pots filled nearly to the top with soil, and the bulb set in and pressed down, so that nothing but the crown is above ground, is all that is necessary. The same bulbs can be used a number of years, but they are not so good as fresh ones, which should be obtained each year if possible. After the bulbs are through blooming, they may be left in the soil until spring.

De Lancey's Pine.

Among the noted trees in the vicinity of New York City is DeLancey's Pine. In view of the probable rapid increase of the city in the near future, a commission was appointed by the State Legislature to select lands for public parks well in advance of the time when these pleasure grounds should be required. Among other lands selected were those bordering on the river Bronx. This is a tract, a large portion of which in its native wildness rivals the Adirondack region. Here was the home of De Lancey, whose house was occupied by Washington. Though the house has been burned, there still

"Stands high in solitary state,
De Lancey's ancient pine."

The tree has long, naked branches usually seen in the White Pine when of great age, giving it the aspect shown in the engraving, reproduced from drawings made for the Park Commissioners. It is fortunate that the conversion of this tract into a park will preserve this tree to be admired by future generations, as it has been by those of the past.



A FAMOUS OLD PINE TREE.

Engraved for the American Agriculturist.

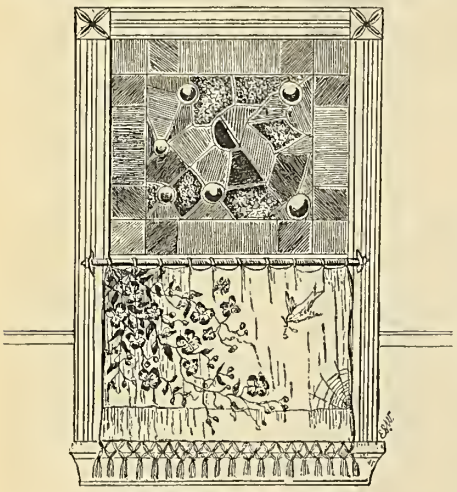
Fruit-Ripening and Decay.

After a fruit has attained its full size, and received from the tree all the nutriment that can conduce to its perfection, it is fully mature and then makes preparation for dropping. This is especially seen in the pear, in which the hold upon the tree, so to speak, is lessened, and if the fruit be gently raised to a horizontal position, the stem parts from the tree by a clean fracture. In the peach and some other fruits, decay soon follows maturity, while in the Russet apples it does not occur until at the end of several months. Among apples and pears we find a great difference in the rapidity with which decay takes place. In some it occurs in a few days after maturity, and it is useless to try to keep these. They are called early varieties, and must be disposed of as soon as possible after they are mature. The late varieties of apples and pears afford no exception to the statement that fruits commence to decay soon after they are mature. This decay is very slow, but not the less certain. In keeping such fruits we endeavor to retard and prolong the process as much as possible. There is a certain point in the process of decay at which these fruits are best suited for use. We call it ripeness or mellowness, and say that the fruit is in "eating condition." When fruit reaches this condition, destructive decay or rotting soon follows. After late apples are stored for the winter, the gradual decay, of which we have spoken, commences. Important changes are going on within the fruit. It absorbs oxygen from the air of the room, and gives off carbonic acid gas. Another change results in the formation of water, which is given off as moisture. The taking up of oxygen by the fruit, and the giving off of carbonic acid, in a short time so vitiate the atmosphere of the room in which the fruit is kept, that it will at once extinguish a candle, and destroy animal life. An atmosphere of this kind tends to preserve the fruit. There being little or no oxygen left in the air of the room, the process of decay is arrested. Hence it is desirable that the room be air-tight, in order to maintain such an atmosphere. The production of carbonic acid shows that the cellar in a dwelling is an improper place for storing fruit. When the gas is present in the air in sufficient proportion, it causes death, and a very small quantity will cause headache, listlessness, and other unpleasant effects. No doubt that many of the troubles attributed to malaria, are due to the gases from vegetables and fruits stored in the cellar. A fruit cellar should be underneath some other building than the dwelling, or a fruit house may be built entirely above ground. A house to keep fruit properly must be built upon the principle of a refrigerator. Its walls, floor, and ceiling, should be double, and the space between them filled with saw-dust. The doors and windows should be double, and as light is undesirable, the windows are to be provided with shutters. There should be a small stove for use, if needed, to keep a proper temperature in severe weather.



Curtain for Stained Glass Window.

The half curtain seen in the engraving, is used where the upper half of the window is stained glass, and the lower half plain. Embroider a piece of pongee for the front of the curtain, with some delicate pattern in bright shades of silk. Line it with the pongee, and finish at the bottom with



A HALF-WINDOW CURTAIN.

fringe the color of the material used, and hang it on a small rod with rings. It will work nicely on a stout wire with small brass rings, and be much less expensive than the rod generally used.

Table Etiquette.

Manners at the table depend in a great measure upon one's surroundings. The way in which food is served has an important influence upon children in the forming of their habits. A proper care in laying the table at each meal with neatness and order, with the same service when the family only are present, as when there are visitors, gives ease and manners to all, should unexpected company arrive at time of meals. A lady remarked to a friend a few days ago: "You must be very much worn out, for it is noticed that you have had company almost all the time this summer."—"Oh, no," was the reply, "we enjoy it; we never change anything, and try to have our table ready for company all the time." The spotless table linen, clean glass, and bright silver, often seen in that lady's dining room, prove her words to be true.

Americans have long been held up to ridicule by foreigners, and justly too, for their habits of "cramming" the food. This is true, not only of business men who rush into a restaurant, often standing about a counter like so many animals, waiting to be fed as quickly as possible, but also ladies and children do much the same thing at home.

A true lady or gentleman presiding at the home table, will be known by the quiet, gentle manners, together with a constant care for others, suiting each one's taste as far as possible, with few words about it. If there be a servant in waiting, she should be controlled by looks rather than words, or better, she should be so trained to her duties before coming into the dining room that she will seldom need any directions there. When the bell calls her in, she will fill each one's glass with water; then pass the butter on a small tray to the left of each one, that all may help themselves, then the bread—some cut bread in squares and place them on each one's napkin. Soup, fish, and meat, if used in courses, or alone, are served in the same way. Vegetables are placed upon the tray in the vegetable dish, and every one helps himself. Before desert is brought in, the table is cleared and the cloth brushed free from crumbs. It is desirable that these rules should be carried out at the simplest table. If there is but one servant for all the house work, she should understand that this is one of her most important duties, and she should be required to have her hair neatly brushed, and her calico dress, collar, and white apron always ready for this service. A constant jumping up from the table by any of the family for one thing and another, is a great annoyance to all.

Breakfast being necessarily an informal meal, there is less ceremony than at dinner. Fruit, if used, stands upon the table; as all the family can seldom be present at the same time, other things are kept hot in the kitchen and brought to the guests as they arrive. An English family that entertains with bountiful hospitality, serves breakfast to their guests at any hour of the morning, but in a private family guests should observe the rules of courtesy by adapting themselves to the breakfast hour, as also to all other customs of the family they are visiting, as delays of this kind often make a deal of trouble and extra work.

Nothing is so suitable for a dinner table-cloth and napkins as pure white damask. For breakfast and lunch red damask looks well and washes admirably, but colored embroideries on white, or any elaborate work where changes for washing are so often made, seem altogether unsuitable. Flowers are a pretty adornment for the table, but they should not be profuse. A slender vase at each end of the table with flowers of a single kind, with their leaves, are much prettier than bouquets of mixed colors. A very desirable addition to the table is a small tea-kettle of copper, bronze, or polished brass, with its alcohol lamp, to keep the water at boiling point all through the breakfast or tea. It costs from two to eight dollars. The hot water is used to heat the cups before pouring the tea or coffee, and to regulate its strength.

Many rules for good table manners will occur to all who are observant, and the best way to inform one's self is to watch carefully those who are considered as models of polite behavior, and copy their habits in this respect. ETHEL STONE.

A Table Jardiniere.

The very pretty and novel jardiniere for the table shown in the engraving, is made of six pieces of thin wood neatly glued together, and a board fitted in for the bottom. When made of oak it can be left

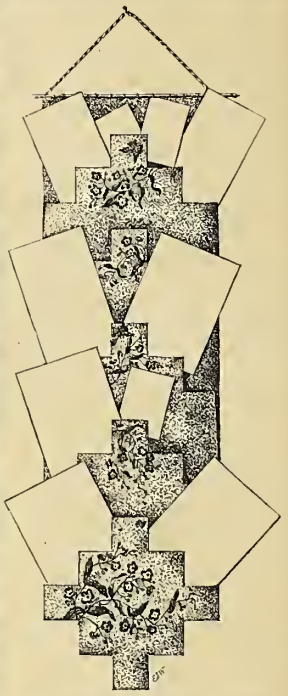


A JARDINIERE FOR THE TABLE.

the natural color of the wood or gilded, but if of pine, paint it black or brown. Paint some objects on the sides in colors, which will harmonize with the plants that are to be held. After the flower-pot is placed in, lay moss over the top to conceal it from view. If large brass-headed nails are used for feet, the jardiniere will be finished.

A New Photograph Receiver.

The hanging receiver for photographs seen in the engraving, is made of dark-brown plush, with forget-me-nots embroidered in light blue. First cut out the foundation or back, which should be of heavy paste-board, seven and a half inches wide, and as long as desired. It can be half as long again as the one here illustrated. The pieces for the outside are seven and a half inches wide, the top cut in squares measuring an inch and a half each way, and long enough to lap over one another. The forget-me-not spray on the top of each piece should be embroidered before it is covered. Baste the plush neatly on the paste-board, and line it with light blue silk or Silesia. When all the flaps are finished in this manner, sew them firmly to the plush-covered back. If the sprays are painted instead of embroidered, it can be done better after it is all finished. Fasten the top to a brass banner-rod, and hang the receiver with a light blue silk cord.



A PHOTOGRAPH RECEIVER.

How to Make Good Pickles.

It is the duty of every housekeeper to make, or see made, the pickles to be used in her family. To this end (if she does not know how), she should learn to make an eatable pickle—one she knows contains nothing injurious. There is a principle in everything; that of canning fruit is to expel the air by means of heat and expansion, and then keep the air out by means of rubber and glass, tin and solder. The principle of pickling is to reduce the fruit or vegetable by means of salt or boiling, and then supply the waste or displacement by vinegar. Experience has taught us, that fruit and vegetables of all kinds will keep perfectly in vinegar, if certain principles are understood and intelligently followed. You must have good, strong vinegar; take whatever trouble is necessary to secure it. Be willing to follow a recipe in which you have confidence. Many fail, because they will not be exact. They guess at the measurements. Being short of sugar, they use less, but having plenty of spice, a double allowance is thrown in. Instead of taking the kettle from the fire at the boiling point, the vinegar is allowed to boil until the strength is quite gone out of it. This inexactness is all wrong.

CUCUMBER PICKLE.—We will suppose you have five hundred small, green cucumbers. Wash them at once, rejecting any that are soft in spots. Place them in a jar, and pour over enough well salted water to cover them. The color is better if the brine is cool, about a pint of salt to a gallon of water is the rule, well dissolved and mixed. Let them stand twenty-four hours, but not longer; better only twelve hours than too long. If bubbles arise on the water it is time to take them out, as the flavor will spoil. Let them drain or wipe them dry. Take as much vinegar as you used of water to cover them. Spice it well with mustard, capsicum, whole ginger, allspice, and a little mace, but use no cloves or cinnamon, as these latter discolor and spoil the flavor to most tastes. To every gallon allow a piece of alum, the size of a hickory nut or a trifle larger. Let the vinegar and spice come to a boil, and pour it over the cucumbers in a

narrow-mouthed crock. Keep in a cellar or a cool room covered with a crock-lid. A little sugar, say a quarter pound, will help to make the pickles keep, and in time it strengthens the vinegar. The mixed spices of the stores are usually good.

Mangoes.—Take young, green, smooth-skinned musk-melons, not larger than three inches in diameter, cut out a piece and remove the seeds; fill in with any small vegetables, and tie on the lid. Place the melons in brine, and afterwards drain and pickle them exactly as for cucumbers, using mustard seed a little more freely, a half teaspoonful in each melon before tying on the lid.

Onion Pickle.—Use small onions; peel them, and place in brine for twenty-four hours; afterwards drain very dry, and pickle as for cucumbers.

Cauliflower.—The principle is the same; cover with salt water, restore to crispness with spiced vinegar and a trifle of alum.

Red Cabbage.—Cut in neat, even slices, sprinkle salt on the layers and let stand over night, rinse off the salt, drain dry, and pour over spiced vinegar and cover. Remember a little alum, not too much, is necessary to make it crisp.

Higdon.—This is an old-fashioned favorite. Mixed vegetables of any desirable kind are cut in fine slices, and treated the same as red cabbage.

Green Tomato Pickles.—Take green tomatoes, slice evenly and finely with or without sliced onion. To one gallon allow two quarts of vinegar, well spiced with cloves, cinnamon, and ground mustard, with a half pound of sugar added.

Pickled Peaches.—We now come to another order of pickle, requiring entirely different treatment. The principle is the same, however, though instead of reducing with salt, heat is used. To seven pounds of peaches allow one quart of vinegar, and three or four pounds of sugar, white or brown, spiced with cinnamon and cloves, whole, if convenient, if not, the ground will do, though not as good. Bring the vinegar to a boil, adding a few peaches, when reduced a little take out and add more. When done, pour the juice over the whole.

Pickled Plums.—These are made very much the same as peaches, though you may vary, if you wish, by boiling the vinegar three successive days, and pouring over the fruit. Crab apples, cherries, pears, or any tree fruit may be pickled in this way. Remember, that for vegetables use salt, vinegar, alum, and any spice, excepting cloves and cinnamon, and for fruit use a quart of vinegar to three or four pounds of sugar, with cloves and cinnamon as spices to suit the taste. Aunt Hattie.

Our Sleeping Rooms.

LUCY RANDOLPH FLEMING.

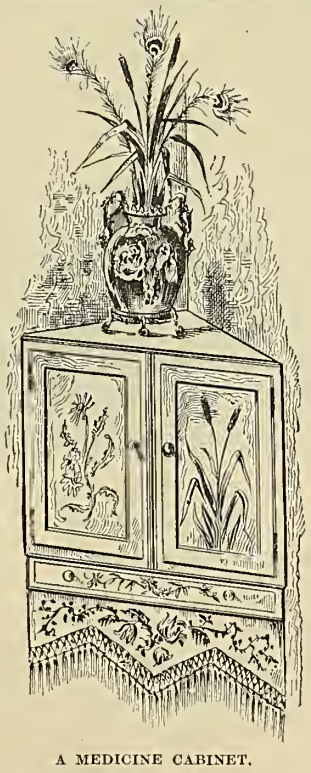
A physician of note says, "we hear a great talk about malaria now-a-days, but there is more malaria to be found in most modern bedchambers than anywhere else." Persons who are moderately intelligent on other topics, appear to have small thought, or that very perverted, on the subject of hygiene in their sleeping rooms, and especially those occupied by children. The ventilation of a bedchamber cannot be too carefully attended to; and, as says Horace Mann, "seeing the atmosphere is forty miles deep all around the globe, it is a useless piece of economy to breathe it more than once." Yet nine mothers out of ten will carefully close all the windows, "for fear of colds and night air," and leave two or three children to sleep in a stifling atmosphere, and see no connection between the colds and throat troubles they have, and the vitiated air she compels them to breathe night after night. Let the morning air and sunshine into the bedroom as soon as possible after the occupants have risen; and if there is no sunshine, and it is not raining, let in the air. Do not make up beds too soon after they are vacated. You may get your house tidied sooner, but it is neither cleanly nor healthful to snugly pack up bed clothing until the exhalations of the sleepers' bodies have been removed by exposure to the air.

Look carefully after the wash-stand and the various utensils belonging thereto. The soap-dishes and tooth-brush mugs cannot be kept too scrupulously clean. All slops and foul water should be emptied very promptly. Wash out and sun all pitchers, glasses, and whatever vessel are used in the sleeping room. Never allow water, or stale bouquets of flowers to stand for days in the spare chamber after the departure of a guest. Towels that have been used should be promptly removed, and no soiled clothing allowed to hang or accumulate about the room. Closets opening into a sleeping apartment are often the receptacles of soiled clothes, shoes, etc., and become fruitful sources of bad air, particularly where there are small children. After such places the housewife should look with a keen eye for objectionable articles, and remove them with an unsparing hand. I have encountered such closets, in which one might find all the odors traditionally belonging to the city of Cologne—any one of which was enough to suggest ideas of disease-germs.

Even so innocent a piece of furniture as the bureau, may by carelessness become the recipient of articles, which may taint the air of your bedchamber. Damp and soiled combs and brushes are not only unsightly and disgusting, but lying soiled and unaired from day to day, will certainly contribute to evil air and odors, as will also greasy and highly scented hair ribbons, etc. Never lay freshly laundried clothes upon the bed; nor air the same in your bedroom, if possible to do so elsewhere. Do not hesitate to light a fire on cool mornings and evenings; and if so fortunate as to have an open fire-place, you possess a grand means of comfort and ventilation in the bedchamber.

A Corner Medicine Cabinet.

The Hanging Cabinet, shown in the engraving, can be made very ornamental. The case is of black walnut with panels of light wood. Wild roses are painted on one panel, and rushes on the other. There are three shelves to hold vials. Below is a drawer for court plaster, pieces of linen, string, etc. A lambrequin of velveteen, embroidered and



A MEDICINE CABINET.

edged with fringe, gives a handsome finish to the cabinet, while the top can be used as a shelf for a vase or other ornamental object. The lamp may be there during the day. Much time and suffering may be saved if a medicine cabinet is close at hand, well stocked with standard remedies and such other things, as are important in cases of illness. Label every bottle or package plainly, and keep nothing of a poisonous nature among household remedies.

Shoe-Case and Bag for Soiled Linen.

The articles as seen in the engravings may be of almost any material, cretonne or calico being preferred, as they shed the dust. To make the shoe-case shown in figure 1, take a piece of the

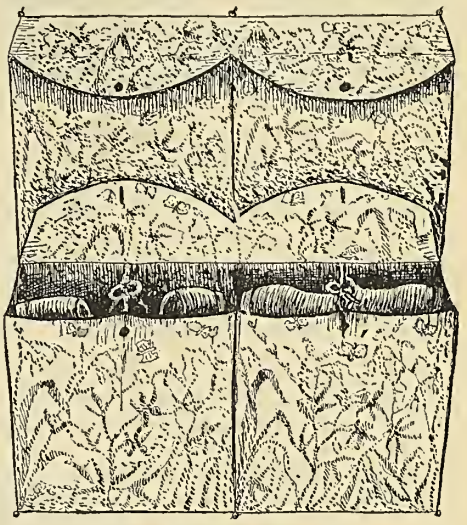


Fig. 1.—A SHOE-CASE.

goods double for the back, twenty-four inches long and seventeen wide. The piece of which the pockets are formed is thirty-three inches long, and ten inches wide, also made double. Stitch two pieces four and a half inches from the outside edge, which make a place for the pasteboard. Cut the pasteboard eight by ten inches, and slip it in place; plait the spaces which are left at each side to fit the back, and baste on the pockets. The flaps are made the width of the back, and seven and a half inches deep. Bind them with braid and baste in place, afterwards bind it all round with braid, and sew pieces on each pocket by which to tie it up. The bag for soiled linen (fig. 2), is made of two straight pieces sewed together all round, stitching it twice across the top. Cut a slit in the front, and bind it with braid. Hang the bag with braid.



Fig. 2.—A CLOTHES BAG.

Have More Salads.—Their Healthfulness.

Probably no people use so few salads as the Americans. Here Lettuce is by a large majority regarded as the one plant to be used as a salad, and this is most frequently dressed with sugar and vinegar. The primary reason why we should use more salads, is their healthfulness. Sailors upon long voyages and soldiers on service on the frontier, subsist largely upon salted meats, and are afflicted with that most distressing disease—scurvy. A supply of fresh vegetables at once effects a cure. The antiscorbutic (against scurvy) action of vegetables is well established, and is supposed to be due to the saline matters they contain. In cooking vegetables, a large share of these saline constituents are removed, which is supposed to account for the fact, that raw vegetables are more effective than cooked in the cure of scurvy. In the early days of California mining, scurvy was a common disease, and the miners gladly paid a dollar a-piece for potatoes, which they sliced in vinegar and ate raw. Farmer's families, especially those who live a long distance from markets, of necessity live largely upon salted meats. This diet produces incipient scurvy, as is often manifested in defective teeth, bad breath, and a colorless skin, accompanied by an inordinate desire for pickles and acids generally. Have more salads.



Caught in the Battle.

A VIRGINIAN.

"Now, Uncle Edward," said Tom and Bessie Grayland, "the last time you were here we asked you to tell us a story, and you said that you hadn't time then, but would do so when you came to see us again; so put away your paper and tell us a good one."—"So I did," replied their uncle; "and if you will be attentive, I will relate an incident that happened in the first year of the civil war, which you have read about in your school history.

"In the wilds of the southern Alleghanies, there once lived a boy and girl whom I shall now call Will and Nellie. Unlike you two youngsters — who have been to the great cities, where you walked the streets and saw huge ships—these tow-headed children had never seen anything of the outside world. Their principal amusements were hunting wild flowers on the mountain side, chasing butterflies up and down the lonely road, and fishing for minnows and craw-fish in a little brook that flowed through the orchard. After awhile came the great war, and Will's and Nellie's father was drafted into the Southern service. Away up on the top of a high mountain his regiment was intrenched, and one time he took Will up with him, and the boy had wonderful things to tell Nellie when he got home, about the immense earthworks all bristling with cannon and bayonets. One day they were much surprised to see their father come home. It was nothing unusual for him to visit his family on Sundays, but this day was no Sunday, and why he came was then a mystery. After remaining a short time he bade them all farewell, saying it was necessary for him to return immediately. Will and Nellie climbed to the top of the high rail fence, and watched him as he passed up the steep, shady road, until he arrived at a place where it made a quick turn, taking off his cap he waved it several times over his head, and a moment later the dark trees completely hid him from view. Then they got off the fence and began questioning their mother, who seemed greatly worried over something. She told them that a great Union army was marching to take the mountain, and their father had permission to come and direct her what to do in case of danger. The boy and girl must not venture far from home for fear something might happen to them. Will and Nellie did not always heed their mother's advice, and the following morning Will proposed to go to the top of the mountain and see their father. 'I tell you, Nell,' he said, coaxingly, 'you'll see a heap you don't know what it is; you just ought to see all of those cannons and guns.'—'But suppose the other soldiers come while we are up there, then what would we do?' inquired Nellie.—'Oh, you needn't be afraid of them,' said Will, 'we'll be back long before they can get here.' Nellie hesitated for a while, but finally Will's glowing description of the things she would see, overcame her disposition to remain at home, and she willingly consented to accompany him. Up, up, up, they went, until the long windings became very tiresome, particularly to Nellie. Will, in order to facilitate the ascent, suggested that it would be much easier to go directly up, instead of following the long, winding road. This they attempted, and walked and walked, and still the top which they every minute hoped to reach, seemed as far off as ever. They reached the top, but alas! it was not the top they sought, only a spur of the mountain. They were lost. While they stood there wondering what to do, they were suddenly startled by a discharge of guns in a distant part of the mountain. 'Oh, the Unions!' they said, and filled with terror they turned, and made a desperate effort to find the road which they meant to follow home, not knowing that each step they took was taking them directly from it. The firing had now become very frequent, and was not confined to any particular part of the mountain, but seemed to be all around; and then began the booming of cannon, which would, for the time, drown the clatter of musketry, and cause the whole mountain to tremble from top to bottom, as with the shock of an earthquake.

"'Come on fast, Nell, let's find the road and get home!' said Will.—'Oh, we'll be killed!' cried Nellie, as she hurried along at his side. For a while there seemed to be a pause in the firing, but in a few minutes it was renewed very near, and suddenly there was a rustling noise among the dry leaves, a swaying to and fro of the dense under-growth, and a large number of men in blue clothes and with bright guns swept by. A few of them appeared to see the children, for they looked toward them wonderingly, but of course could not render them any assistance. 'That's the Unions,' said Nellie, crying bitterly, and Will, no longer able to restrain himself, also gave way to tears. Away went the soldiers up the rough mountain side, and Will and Nellie saw some of them fall, as volley after volley was poured among them; and every now and then a big bomb, with its fiery trail, screamed by in its lofty flight over the trees On, on they wandered, over fallen timber and huge rocks, and through deep ravines, until the day was nearly spent, and still the battle raged, but at a long distance from them. All at once they came upon a wounded soldier. They drew back in horror, but when they saw the poor dying man beckon to them, they summoned all their courage, went



ON THE PICKET LINE AT NIGHT.

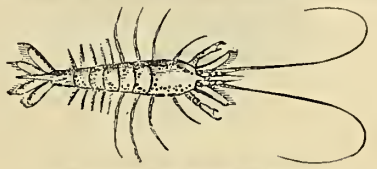
Drawn and Engraved for the American Agriculturist.

up to him, and asked him what they could do for him. He pulled his canteen from around his neck, and pointing to a place where he could see water dripping from some stones, asked them in a tone scarcely above a whisper, if they wouldn't go and fill it for him. They took it eagerly and went, and in a few minutes returned with it filled with clear, cold water. The soldier put it to his parched lips and took a long draught, which seemed to refresh him greatly. He then caught Nellie by the hand and drew her closely to him, and told her that he was dying, but for her not to be afraid of him; that she reminded him of his own little girl that he had left away in the North. 'She will soon be a little orphan,' he said, 'and I want you to write to her and tell her about finding her dying father on the battle-field, and how you carried him water and remained at his side, comforting him in the last hours of his life.' He said her name was Nora Laywood, and that she lived in Portland, Maine. These words were scarcely audible, and were the last the poor soldier ever uttered, for in a short time after he spoke to them he was dead. Then Will and Nellie crossed the powder-begrimed hands over his breast, for they were not afraid of him now, but had become much attached to him, placed his musket and canteen by his side, and then went in search of the road, all the while fearing that they would have to remain in the woods during the night. Just as it was getting dark they came to a road, which they supposed would be the one that would lead them home, and they began the ascent in a hurry. How ghostly all the stumps and high rocks looked, and what a death-like stillness reigned! Not even the accustomed hoot of an owl relieved the monotonous silence; no night-roaming animals ran across the way, for the noise of battle had frightened them all to their hiding places, from which they yet feared to venture. Will and Nellie imagined, that certain trees and turns in the road looked familiar, and ran along in hopeful expectation of soon reaching home, when a gruff 'Halt! who goes there?' suddenly filled them with terror. They stopped and looked, but as it was now real dark, they at first saw no one, but the next instant a man with a musket in his hand stepped into the middle of the road, and again repeated the command. They now knew that he was a picket, and they had a great dread of pickets, for they had heard of persons being shot by them, so they sprang in among the trees, hoping to escape him by going around him; but the woods were so dark and gloomy, that they were afraid to attempt it, and so huddled together at the roots of a large tree, with the intention of passing when it grew darker. By this time the picket had seen that they were nothing but little children, and called out to them to come to him, but his voice was so loud and harsh, that they nestled the closer to each other, and trembled all the more. The picket waited a while to see if they would answer his summons, and as they did not, he walked up the road and entered the woods at the exact place where they did, and called again, but still there was no reply. Then he drew a match from his pocket and lighted a piece of bark, which he held up while he looked cautiously around. He quickly saw them, and walked up to them, although his voice was gruff he spoke very kindly, and led them to where his comrades were. They told the pickets of their day's experience, and tried to explain to them the location of their home. The pickets were deeply interested in all they told them, and when they said they were tired and sleepy, they gave them blankets in which they wrapped themselves, and lay down and slept until morning. They then took breakfast with the pickets, bade them good-bye, and continued on down the mountain. When they arrived at the foot, instead of their own home, they were surprised to find themselves in a strange community; but seeing a house they went to it, and the family that lived there knew them, and had them sent to their home, which was several miles away. The next day tidings came telling of their father's death, for he had been shot down in the battle, and Will and Nellie never saw him afterward, for he was buried in the trenches.

"And did Nellie ever write to Nora?" inquired Tom.—"Yes, Nellie wrote to Nora, and told about her and Will being lost in the mountains during a battle, and all about finding her wounded father; and Nora replied, saying how glad she was that they escaped being hurt, and how thankful she was to them for having been so kind to her poor father, and to remain with him until he died. Now who do you think Nellie was? Well she is now your mother, and Will is your Uncle Edward."

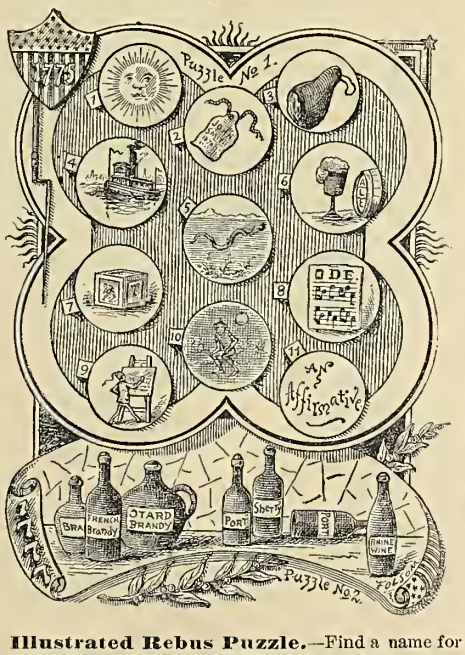
What are Shrimps?

I suppose that all the boys and girls old enough to read, have, all over the country, seen the account of the Greely Expedition. You have read how this party struggled against cold and starvation, and after a large number had perished, the few who remained alive were rescued by the relief ships sent out to bring them back. One of the accounts states that at one time the men were kept from starving by shrimps, which were so very small, that a pint of them contained several thousands. One of my young friends wishes to know about shrimps. You may be sure that he lives far inland, for did he reside near salt water, he would know shrimps, and may even have eaten them. The kinds of shrimps are very numerous, some as large as one's finger, are much esteemed as food, and in their season are offered in the markets. A much smaller kind, found all along the coast, is the Bait Shrimp, and much used by fishermen as bait in angling in both salt and fresh water. Still smaller shrimps are known as sand-hoppers, from their jumping motions. It is impossible to say which of the many shrimps were eaten by the Arctic party; it was probably some small kind peculiar



THE COMMON BAIT SHRIMP.

to the frozen regions. Those who have seen lobsters or even the little craw-fish common in fresh water streams and ditches, and often called "crabs" by the youngsters, can have an idea of the general appearance of a shrimp, and the engraving of the Bait Shrimp here given, will also help to show what the creatures were like that helped sustain the lives of those brave men. THE DOCTOR.



Illustrated Rebus Puzzle.—Find a name for each of the eleven pictures in the first puzzle, and arrange the names so as to give a zig-zag. The zig-zag will form the name of the Member of Congress who proposed George Washington for commander in chief of the Continental Army. The second puzzle gives the name of the stream on which the American Army encamped for a time in 1777.



The Transposition Rebus.—This is read like the ordinary rebus, and the letters enclosed in circles when transposed give the sur-name of the author quoted.

Do You Know My Boarders?

My boarders came to me in a little box, as grayish-looking eggs, about the size of common pinheads. They were placed on a long table in the sitting-room, and as hatching time approached, the tiny eggs, which were thickly strown over pieces of pasteboard, became whiter and more transparent, and we expected to see snow-white insects come from them. Our surprise was great, one morning, to find a lot of jet-black speeks moving about in the box! Whether they moved serpent-like or with tiny legs, we could not see, but somehow they found their way to a few mulberry leaves which had been placed near, and went to making small holes in them. Indeed, eating seemed to be the chief end for which they had left their egg homes, and so long as fresh leaves were abundant, the little speeks were not disposed to wander from the place of their birth. Thus it was for five days; then, when fresh leaves were given them, they would not eat or crawl! They were not dead, but asleep, and changing their coats. The next day they awoke one by one, and leaving their small black garments on the dry leaves, in neat-fitting, lighter-colored coats, they crawled to fresh leaves, and began to eat with an apparently added relish. They were now a little larger, and small feet could be seen as they walked over the leaves. They dined often and long, and after a short rest, would eat again, making large holes in the leaves. They found in the mulberry both food and drink, and would crawl from a drop of water on a leaf, as though they feared drowning in its depths.

With all their greediness for food, my boarders were rather sensitive to the cold, and for their comfort the temperature of the sitting-room was kept at between seventy and eighty degrees. The leaves that were not eaten, withered rapidly, therefore, five or six times from early morning to late in the evening, a fresh supply of food was given.

My one hundred boarders were fast increasing in size, and required more and more room on my table. They slept three times more in the course of six weeks. They would crawl as high as possible on the leaves and branches, and raising their heads in the air, go to sleep. The last coats were really fine white summer suits. The boarders were all in neat fitting buttonless dresses, and were ready for dinner at a moment's warning.

They were now almost as wide as my little finger, and three inches in length. These fat worms had four pair of legs each, and three pair of false legs in front, with which they clung to the branches. They developed much curiosity, especially when

in new positions. On placing one in a mulberry tree, it slowly raised itself to look over the edge of a branch to the ground, elevated its head apparently to examine the hight of the tree, then looked behind, before and beside it, still standing in one spot. Ten minutes' examination seemed to satisfy, and then down went its head to eating as fast as though determined to make up for lost time.

"But of what use are such gluttonous boarders?" asks the reader. Well, of what use is your pretty silk scarf and ribbons, or your blue silk dress?

My boarders at length had eaten enough, and went hunting about for places to spin themselves little silken nests. Some of them climbed to the top of a branch and began there to spin; others crawled into round cells made of pasteboard, and two or three were so foolish as to spin from leaf to leaf without apparently knowing how to make a nest at all. But when the latter were shut up in small boxes, they went about their nests, and in three days had them all made and were shut up inside. In the heads of my boarders are two small holes or ducts from which the silk comes out, and afterwards unites, making one thread. The worm moves its head from left to right, and from right to left, until the cocoon is made. It is usually from an inch to an inch and a half in length; not so long as the worm inside, because the latter is curled up. When the cocoon is yellow, it looks like a pea-nut, being depressed in the middle in the same manner as that strange underground fruit.

Were my boarders shut up to die? I waited to see them come out for days and even weeks. "Were they not hungry?" No, they had no more use for mulberry leaves. Early one morning there came out a prisoner with crimped, damp wings, through one end of a cocoon. It was grayish-white in color, with brownish markings across the wings, and very pretty. How different from the three-inch, fat worms that went in! I did not know my boarder now. It would not eat a bit of mulberry. At length other moths came from the cocoons to keep it company, and the next day I found a whole lot of tiny eggs, looking just like those I had received in the little box.

The moths stood around in a long box, walked from side to side of it, and at length died. Can you tell me now the name of my former boarders?

In order to get the material for your silk dress, a great many worms have to die; for, in coming out of the cocoons, the moths break the threads so that the silk cannot be reeled, therefore the chrysalides within must be smothered. The usual way is to place the cocoon in a heated oven or in a basket covered closely with flannel over boiling water for about an hour. We will hope that the prisoners are fast asleep, and know nothing of being steamed to death. MRS. C. E. BAMFORD.

The Doctor's Talks.

There are two "shell-fish," living in salt-water, that are known as clams in some localities. These are: the so-called round, or hard clam, with a thick heavy shell. This is not properly a clam, but a quahog. The true clam, distinguished in some markets as the "soft," or "long clam," is a very different animal. It lives in the sand between high and low water mark, burying itself to the depth of several inches. If you walk along the sand at low tide, you will notice little streams of water spurting up from holes in the sand. This water is discharged from the clams when alarmed. By digging at these places you will soon come upon the clam, which is shown in figure 1, with one of its shells removed. Its shells are quite thin, usually white, and of the shape shown in figure 2, which represents the inside of the shell. Like the fresh-water animal, this has a foot, shown at *f*, figure 1. Between the two shells is a thickened portion of the mantle, *m*, which fishermen call the "rim." Like the fresh-water clam, this has two tubes, one for taking in, and the other for sending out water. These, *s*, *s*, are inclosed in a strong sheath, which is represented as divided lengthwise, in figure 1. The tubes in the sheath form together what alongshore people call the "snout." The clam can so elongate it, that it reaches from its resting place, up to the surface of the sand. When the tide covers the sand, the clam takes in water through one of these tubes, which supplies the gills with breath, and at the same time it brings in minute

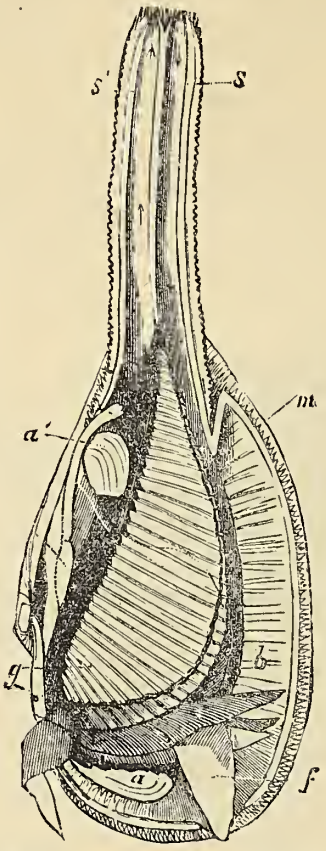


Fig. 1.—CLAM SHOWING THE ANIMAL.

creatures, upon which the clam feeds. When the rising tide covers the sand, the end of the snout is at the top of the hole, and the water passes in at the larger opening, and out at the other. Around the openings of these tubes there are little feelers, like a fringe, which, by their constant motion, keep a current of water flowing in at one opening and out at the other. This condition of comfort gave rise to the along-shore saying, "As happy as a clam at high water mark." To see the animal itself, one of its shells must be removed as in figure 1. At *m*, in the thick portion of the mantle (see last month's Talks for description of the mantle), *a*, *a*, show where the two muscles are attached that hold the shells together. The foot is seen at *f*; the gills, *g*, are delicate plates, two on each side of the body, *b*, which they nearly hide. The body is large and globular, and is the principal catable portion of the clam.

The inside of a clam shell is given in figure 2. In the fresh-water clam, as shown last month, the strong ligament that acts as a hinge and holds the two shells together, is on the outside; here, as

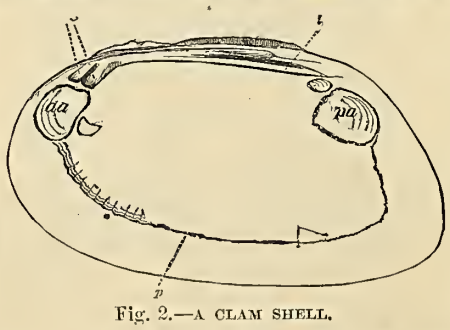


Fig. 2.—A CLAM SHELL.

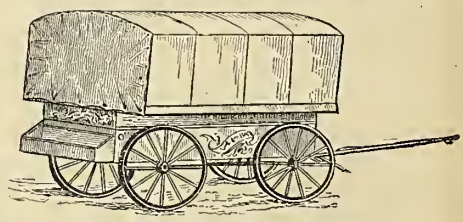
seen at *l*, it is on the inside of the shells. The marks *aa* and *pa* are scars which show the points where the strong muscles, those which draw the shells together and close them, were attached. The irregular line, *pl*, marks the portion of a shell to which the mantle of the animal was attached.

A Dakota Boy's Letters to his Friend.

FRIEND JAMES:—I have intended to write you ever since we came to Dakota, but have been so busy that it was almost an impossibility. We left the East in a "Prairie Schooner," and enjoyed the trip very much. I will tell you how we fixed our wagon. We had a good ox-team, and father bought a new, strong lumber wagon with a double box. We took some two by four basswood scantling, cut six feet long, using five pieces, and laid them crosswise of the box, cutting notches about an inch deep, where they rested on the box to keep them in place. They projected over each side eighteen inches. Boards were nailed on the underside, outside the box, and a strip about six inches wide on the ends of the scantling. Strips of basswood, one by two inches, four feet long, were fastened upon these six-inch boards with screws, and made a solid frame about four feet high and six feet wide. We covered this on the top and sides with a heavy manilla building paper, all of one piece, for sides and top. The joints came on the strips, to which they were firmly pasted and tacked. A strip of carpet binding was placed over the joints, through which the tacks were driven. Afterwards the whole top was given one coat of a light-colored paint. For the ends we fixed curtains of canvas, so that we could button them on the frame work. They could be rolled up from the bottom or down from the top, just as we wanted them.

Trunks and boxes were packed away in the back end of the wagon box, level with the top of the box, and a straw bed was placed over them. By hanging a curtain up in front, mother and Emma could sleep as comfortable as at home. Father and I would take out the spring seat, and spread some blankets and clothing over strips laid across the front end of the box, and were very comfortable. We brought one horse and a covered buggy with us, and mother and sister would ride in that, father and I driving the oxen. When we stopped for meals, we set up our oil stove on one side of the projecting wagon top, and used the other side for a table, and found it much more comfortable than to get up a fire outside, especially if it rained.

On a rainy day we would hitch the horse and



AN IMPROVED "SCHOONER."

buggy behind the wagon, and mother and sister would ride with us. We brought but little with us besides some crockery, clothing, and a few tools; all other goods were boxed up, and left with Uncle Edward, who will send them to us when we get a place for them.

We came into the territory through Moody County, crossing Lake and Miner counties, then north through Beadle and Spink counties. We found some fine land and had many chances to buy claims which had been proved upon, but father wanted to look further, even if he had to come back, so we struck West through Faulk County. We found some splendid land here, although there is hardly such a thing as a tree in the county, a few being found along the Nixon River. The land is rolling and soil looks very fine. We finally found a quarter section within half a mile of the centre of the country on which a man had squatted and broken about ten acres. He was one who can never be satisfied, so father gave him a little more than the value of the breaking, and entered it as a homestead. He had to go to Huron to file on it, and says that the picture in the December *American Agriculturist*, 1883, is as near correct as possible, and he can almost pick out his picture in the crowd waiting to get into the office building.

Agricultural Fairs as Educators.

D. D. T. MOORE.

During the past forty years, the agricultural and kindred associations, which hold their annual exhibitions, have greatly multiplied in this country. Within that period, a large proportion of the Agricultural and Horticultural Societies, State Boards of Agriculture, and Farmer's Clubs now in operation, have been organized and proved efficient co-workers, in promoting improvement in various branches of productive industry. Several of the Western States and Territories which were but sparsely populated a few years ago, now have many very successful rural organizations, whose annual shows compare favorably with those of New York, Pennsylvania and New England. Indeed, it is claimed that Illinois and Iowa excel any two of the Eastern or Middle States, in the number and efficiency of societies designed to advance progress and improvement in agriculture, mechanics, and the industrial arts and sciences generally. While State Societies and Boards of Agriculture in the West—such as those of Ohio, Michigan, Illinois, Iowa, and Kansas—have accomplished much through their exhibitions, and the dissemination of valuable information in printed form, numerous county and other organizations have sprung up, and proved most efficient auxiliaries in educating and elevating the producing classes. Meantime the intelligent ruralists of the East have made progress in the right direction, for they have sustained and increased the usefulness of old societies and clubs, and organized many new ones which have proved successful, and are now exerting a salutary influence.

The superior fruits, vegetables, grains, seeds, domestic animals, tools, implements and the like, exhibited at the annual fairs all over this great rural Republic for decades past, have proved such object lessons as all could readily understand, and myriads have doubtless thus obtained invaluable points and information about choice varieties of fruit, plants and grains, improved breeds of stock, and new implements and machinery. Observation and comparison at fairs, have taught thousands upon thousands—aye, hundreds of thousands—the better way, and induced them to inaugurate various improvements upon their own premises.

People who attend rural and other industrial fairs with their eyes and ears open—as we apprehend do the intelligent and wide-awake readers of the *American Agriculturist*—cannot fail to see much that is new and useful, and hear more or less that must prove interesting, suggestive, and valuable. A careful examination of the leading departments of almost any industrial exhibition, especially those of agriculture and manufactures, will impart to an observer of even ordinary intelligence, much useful knowledge, and suggest wherein changes might be made in his own operations and management, which would redound to his advantage. But the shrewd, progressive farmer, who is ever on the alert for better plants, animals, implements, and improved modes of culture and management, will be still more benefited, for he will critically examine whatever he sees that is rare or superior—contrasting the exhibits with what he has at home—and learn from successful competitors how they achieved their triumphs. Young farmers, and farmer's sons, can learn much by carefully examining whatever they find that is new and useful at the fairs, and it will pay far better than gazing at the demoralizing sideshows, or other alluring attractions which are still allowed on the grounds of some of our modern exhibitions.

Another important feature connected with some of our prominent fairs, is worthy of notice and commendation. The discussions held, papers read, and addresses delivered at the evening meetings during State and other large exhibitions, often prove very instructive and of lasting benefit to those in attendance—for, as in the proceedings at the annual meetings of Pomological and Agricultural Societies, new discoveries, improved processes, and the like, are made known by practical and scientific experts of rare experience. Thus lessons suggested by objects seen at the fairs, are frequently enforced by the explanation of speakers who are familiar with those objects, and the best manner of their utilization. It is a matter of surprise and regret that these meetings, which may be made very useful and instructive, by developing light on subjects of special interest and importance to producers, are not more generally and largely attended, for they are certainly great educators, and when the proceedings are published, they cannot fail of proving instructive and beneficial to the rural community. Let us have more evening sessions, partaking of the characteristics of Farmers' Congresses or Institutes during the holding of prominent fairs, whereat men of large experience, who know whereof they may affirm, shall discuss subjects of paramount importance to those engaged in the leading branches of husbandry, and our annual exhibitions will become still more popular and beneficial to the many cultivators who attend them.



On the Road.

Hints About Traveling.—It is poor economy to curtail one's comforts on the road. Better economize in other directions, and treat yourself generously while travelling. Do not deprive yourself of a regular meal because, forsooth, it appears to you that an exorbitant price is asked for it. Irregularity in eating, together with the unaccustomed motion of travel, will be very apt to get you out of order physically. Then what would otherwise be a pleasure—that is, sight-seeing and prospecting—becomes tedious ; and wearied physically and mentally, you are fortunate if you do not "get down sick" before a long trip is completed. Always take a good night's rest, which cannot be secured in a sitting posture. Be sure and have the porter so make your bed that your head will be in an opposite direction to the one in which the train is going, or, to speak more explicitly—sleep with your feet foremost. Then you are less liable to suffer from the currents of air which creep in through the window-sills, or blow in, if your double windows are open. During warm summer nights, it is generally safe to leave the window open for a short distance, at the foot of your berth. The air thus admitted blows in upon your extremities and purifies the usually oppressive atmosphere in a sleeping car. The Pajama, a night-costume, recently imported into this country from Japan, is a most excellent outfit for night travel. It consists of a loose woolen jacket, or shirt, and loose woolen drawers or pants, both of which can be purchased at dry-goods' stores in large cities, or can be readily made at home after one has seen a pattern. We have found them most comfortable and useful during thousands of miles of travel for two years past, as a protection against cold from without, and from the cold which follows perspiration within, occasioned by a hot atmosphere. Before retiring, always ask the porter to see that the sleeper is well ventilated. At the same time taking care to observe that the admitted air does not blow upon your section. The ventilators at both ends of the sleeping car should be kept open as most conducive to the health and comfort of the sleeping passengers. See to this before retiring.

Sand Flies Extraordinary.—We were not a little surprised, on alighting from the carriage at nine o'clock on a last July evening, at the Leland Hotel, Chicago, located close by the lake-shore, to find the air filled with snow-flakes—so it appeared. It was certainly a phenomenon—a snow storm in mid-summer! The air was filled with these apparent flakes. The porters were sweeping from the sidewalks around the hotel the two or three inches of gathered "snow." The Brush lights were flickering as if about to go wholly out, submerged by the flakes which were rapidly filling the glass globes surrounding them. One light had already been quite "suffocated," and the globe filled to the top. Rifts of "snow" swept into the passage-ways leading to the rotunda, and the verandas along the lake-side of the hotel were fairly flecked from one end to the other with the whitening shower. It was indeed a most astonishing sight with the thermometer at eighty. But a moment, however, sufficed to dispel the illusion. These were not snow-flakes which whitened and covered roof and pavement, and suffocated powerful Brush lights, but sand flies—countless myriads of insects, appearing somewhat like young Dragon-flies, coming up like the locusts of Egypt, from the sands of the lake-shore, to harmlessly fly and flutter for a day and die. The next morning, bushels of them (so the head porter informed us), had been swept up during the night and carried away. They lay dead about the rotunda, through the hallways, in the dining hall, and in guests' chambers whose windows had remained open. Later in the season, we encountered another species at the foot of Lake Ontario, smaller in size, although appearing to have much more vitality. These insects are Day-flies, belonging to the genus *Ephemera*, or closely related to it. Their larval, or grub-state, is passed in the water, and lasts for two years or longer. After leaving the water they undergo their final change, become perfect insects, and devote their brief existence to providing for other broods. A related insect is found in parts of France in such numbers that they are collected by cart-loads, and used for fertilizing the soil.

The Big Fish Swallow the Little Fish.—This is pre-eminently an era of centralization. It is rapidly going on in the cattle business, just as in the railroad, telegraph, telephone, and other branches of industry. "We are all apprehensive," said one of the Colorado cattle-growers, "that the big stock companies who are now absorbing all the land and cattle they can get into their possession, may ultimately secure enough political power to enable them to fence in a large proportion of the cattle-grazing regions, and pay the government a large royalty for them." The Land Commissioner of the Union Pacific Railroad, told me at Omaha, last summer, that one of these colossal companies had made a serious bonafide proposition to him to purchase and fence in, the unsold millions of acres of the Corporation's Land Grant adapted for grazing purposes, and extending as far westward as Utah.

The Profits of Cattle Raising.—Notwithstanding the large stock companies, composed to a large extent of English capitalists, are so aggressive, many of the individual ranchmen continue to hold their own, and to make money. George L. Hopkins, a Brooklyn boy, pleasantly narrated to us, how, going to the Snake River country, Wyoming Territory, six years ago, with two thousand five hundred dollars, and purchasing a small bunch of cattle, they had increased at the rate of eighty per cent a year, with losses of only about five per cent, until now his stock had multiplied beyond the limits of his range. He had just returned from Brooklyn, where he had gone to convey the remains of his partner, who had accidentally shot himself while prospecting for a new and larger range in Arizona Territory.

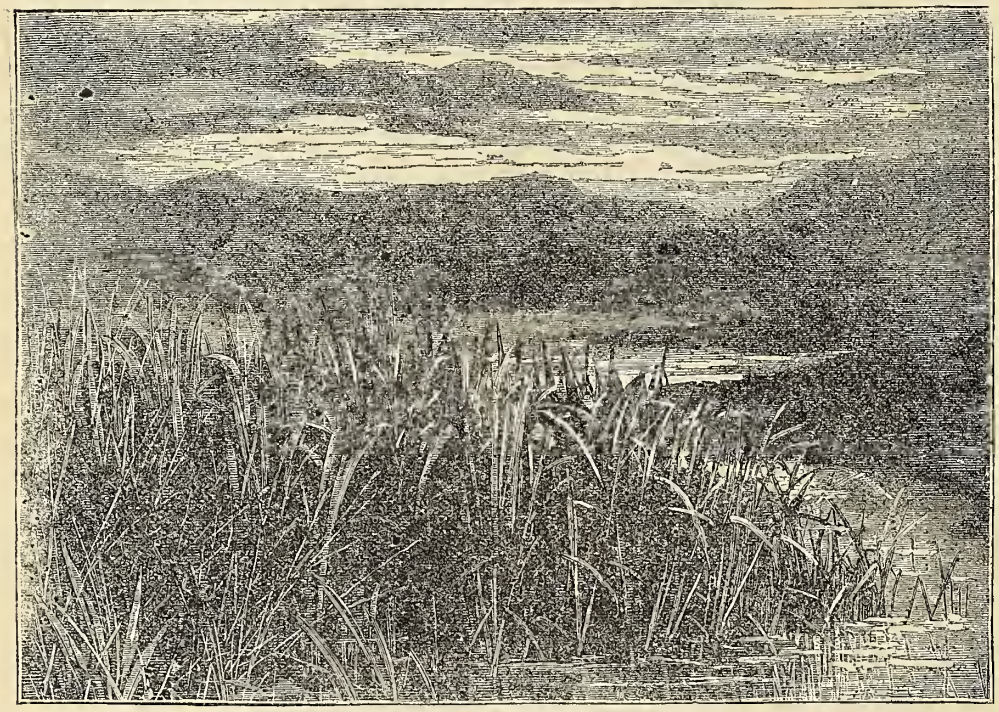
The Grand Army of the Republic Union at Minneapolis.—It was a most inspiring sight—the long line of ex-soldiers who filed by in procession, in simple uniforms—officer and private walking side by side, with nothing to mark any distinction of rank, which they may have held during their soldier days. They came from all over Minnesota, from Michigan, Wisconsin, Illinois, Ohio, from far Dakota in the West, and from New York and other Middle States. And what particularly impressed us was the fact, that the great majority of these men, who once carried the musket, are now farmers—yeomanry—brave men, who after the conflict of civil strife, settled down to the peaceful pursuits of agriculture. And there were Confederates among them, too—ex-soldiers of the Gray, now guests of the ex-soldiers of the Blue. A prominent ex-Confederate officer, after the memorable procession, addressed the vast throng from the same platform as the Union generals; and the eloquence of the beautiful oration was only equaled by the expressions of peace and good-will, which marked every utterance. The incident vividly recalled to us one July afternoon in the stormy war period of 1862. Confederate cannon thundering from Louden, Maryland, and Bolivar Heights formed an almost unbroken circle of fire, which had compelled the surrender of fourteen thousand Union soldiers at Harper's Ferry. This was at eight o'clock in the morning. Before two o'clock on that afternoon, the Northern and the Southern boys were fraternizing all over the village, on the plains of Bolivar, and along the roads leading up the valley toward Winchester. Here was a group sitting cross-legged, and narrating their adventures. There was another group exchanging tobacco. A little party composed of the Blue and Gray were together inspecting the old engine-house, where John Brown made his stand. Still another group were gathering blackberries along the Louden River. At nightfall the Union prisoners were mostly paroled and sent through the Union lines, inasmuch as Stonewall Jackson desired every one of his own soldiers to join General Lee at Bloody Antietam. All day long the boys had talked and laughed together, and we generally agreed that if things were left to us, we could settle the war then and there. And one of the pleasant incidents of this union—for it was nothing else, brought about by the force of circumstances—was the general disposition of the soldiers, on each side, to exchange as friendly souvenirs their canteens before they parted—the Union soldiers to go to their parole-camps, and the Confederate soldiers to engage in fresh battle. It was roughly computed that nearly ten thousand canteens were exchanged that day.

Plenty of School Privileges.—Do not be deterred from moving to the rich prairies on the frontier for fear that your children will not enjoy opportunities for education. All over Dakota, the big, magnificent school-house dots the prairie wherever there is a cluster of dwellings. As a general thing, up goes a school building before a church is erected , and the absent

SEE PAGE 476 (SUPPLEMENT) FOR VALUABLE WESTERN INFORMATION.

speculator is very fortunate if his lands be not heavily taxed for the construction of these school buildings. In fact, the actual settlers regard the lands of the absent owners as legitimate game in this matter of school taxation. It is frequently the case, that the lands of these absent owners are made to pay all—or nearly all—the school taxes for the entire district. "If these speculators," the settlers often argue, "are to receive the benefits of our improvements in the rapid advance in value and selling price of their own unimproved lands, it is only fair and just, that these lands should pay all the taxes we can put on them by hook or by crook."

Emigration to Oregon and Washington Territory.—During the past spring there has been considerable emigration (following the line of the Northern Pacific R. R.), to Eastern Oregon and Washington Territory. Oregon now has a population of two hundred thousand souls. We are assured that there are desirable Government lands to be obtained in the counties of Crook, Wasco, Umatilla, and Lake, any one of which counties is larger than the State of Rhode Island. In Lyons and adjoining countics, improved farms can be purchased at from twenty-five to fifty dollars per acre. Small fruits and orchard fruits of all kinds succeed well in Oregon. As a general thing, the population already on the ground, is very desirable, composed of people of pluck and energy, who have dared to breast the storms and adversities of frontier life. This State of over sixty thousand square miles, is rapidly growing, and promises to eventually become one of the greatest in the galaxy.



"PRAIRIE MORASS AND MOUNTAIN."

A New Industry in Oregon.—Hop Culture is receiving much attention among the farmers of Oregon. For the last three or four years, the hop crop has been very large, and promises to become a leading industry in this State, where an equable climate, together with freedom from insects and diseases, invites its development. The summers are not too hot, and the rain-fall is not too large; so that judging from the experience of the past four years, the crops will ripen to perfection. Our Oregon friends should recollect, that the extent of hop culture will depend upon the number of pickers obtainable, and if they plant too largely in a sparsely settled district, a share of the crop may have to go unpicked.

Rapid Growth.—One November day we rode out to the terminus of a railroad extending from St. Paul to Manitoba. Here was a saw-mill, a few rude structures along the banks of a stream, and a Justice of the Peace holding court in a tent. A broad plateau stretched out on either side, and from all appearances here would be a capital site for a village. I suppose we had enough funds along with us to purchase the entire site. Now, after less than seven years, the city of Crookston with many thousand souls is to be seen here, and all is bustle and activity. We shall next month describe the astonishing growth of places which we visited in Dakota during this trip through the Great Northwest. D. W. J.

Chat with Readers.

Mulberry Trees.—*J. McCrone*, Trumbull Co., Ohio.—The trees may be set out in the fall or spring. In either case, the trees should have a year in which to get established, before the leaves are gathered for feeding silkworms.

Gooseberries.—*C. F. Alton*, Jackson Co., Ill., has gooseberry bushes which bloom, but the fruit drops before it is ripe. If the bushes are of foreign sorts, they rarely succeed. If native varieties, try severe pruning.

A Weed from Arkansas.—*W. G. Wood*, Little Rock, Ark., sends us a specimen of a plant which he says, "is 'taking' this whole country—woods, farms, hills, bottoms, and prairies. Cattle eat it with avidity. This specimen is from a house-yard, or lawn, with a clayey soil, and enriched only by chance droppings of manure."—This plant is the Branched Knotgrass, *Polygonum ramosissimum*, more common westward than elsewhere. It is closely related to the Knotgrass, or Door-weed (*P. aviculare*), so common everywhere, which is not an aggressive weed. Being an annual, it should not be difficult to exterminate it with hoed crops.

Leather Scraps and Saw-dust.—*W. T. Piper*, Suffolk Co., Mass.—Saw-dust is useful as an absorbent in stables, but of little or no value in itself. Leather trimmings, besides being of use as an absorbent, add to the fertilizing qualities of the manure by their slow decay. We should pay the cost of carting the leather-dust rather than take the saw-dust free of charge.

A Silo Question.—*F. W. Evans*, Columbia Co., N. Y., writes, that their silos are thirty-seven feet, and the pressure is so great, that it causes the juice to exude from the corn fodder, and collect to the depth of several inches. He asks, how it would answer to cut up old hay and use it to absorb the liquid. We think that either old hay or straw may be cut up and used in this manner with excellent effect.

Pyrethrum for Ants.—*Mrs. Wallo Piper*, Plymouth Co., Mass., writes us that she finds the "Persian Insect Powder" very effective in destroying red ants. Sprinkle the powder on the shelves where lard, sugar, cake, milk, etc., are kept, even on the sill of the open window, and the ants will disappear as by magic. It looks slovenly to see the powder scattered over the shelves, but it is much preferred to the ants, either red or black.

Unfruitful Orchard.—*J. H. Kellogg*, Rensselaer Co., N. Y., has a young orchard lying near a pond, which three years ago gave a heavy crop, and since has borne very little. —The lack of fruit may be due to one of two causes. The trees may not have had time to recover from the effects of over-bearing, or the orchard may be so near the pond that the soil is too wet. In the first case, good cultivation will bring matters right in time; in the other it is a question of drainage.

A Grass from Oregon, is sent by *F. Hargreaves*, Douglas Co., Oregon, who asks us to give its name and say if it would make a good pasture grass.—The specimen is *Agrostis exarata*, a species very abundant on the Pacific, varying from three inches to as many feet in hight, according to the soil. It has much the appearance of the Florin, or White Bent-grass of Europe and the Atlantic States. The value of the grass in cultivation is just one of those points which those on the ground should determine. Mr. Hargreaves can do the farmers of his and the adjoining States a good service by experimenting in this direction, with the probabilities in favor of a successful result. Try this grass and report to us upon it.

Needle Grass.—"The Stickin."—*W. D. Hayes*, Lancaster Co., Neb., sends us specimens of the seeds of the grass, known by the name here given, which is also called "Porcupine-grass." The grass, *Stipa spartea*, grows two to four feet high. The seed, consisting of the grain inclosed in a tough chaff, is about the size of an oat. At its lower end it has a hard, sharp point, and at the other end is a strong, stiff, wiry, twisted awn, or bristle, from three to seven inches long. According to Mr. Hayes, the grains when they drop soon work out of sight, except the tail. Others have complained of the injury which these sharp-pointed grains inflict upon sheep. Mr. Hayes writes, that the men often come in complaining of "the stickin" which works through the clothing into the skin.

Posts for the Vineyard.—*W. Rieding*, Ottawa Co., Ohio.—The posts which come from Michigan as White Cedar, are no doubt Arbor Vitæ, that tree being known as White Cedar all through that portion of the West. The mature wood of the tree is very durable. Red Cedar, Black Locust, Osage Orange, Post Oak, and Mulberry make the most durable posts. Probably the most ready way to increase the durability of posts, is, to char moderately the portion which goes into the ground, and then dip it in boiling coal tar. Small stakes, soaked in a saturated solution of Blue Vitriol (Sulphate of Copper), dried, and then soaked for a few hours in lime water, are made durable, but we have not tried it upon posts. Soaking seasoned posts in crude petroleum would no doubt help to preserve them.

Artificial Stone.—*G. R. Brobeck*, Grayson Co., Texas. —So late in the season as this, it will not be safe to attempt making artificial stone with any but the very best hydraulic cement. The best no doubt is the imported "Roman" cement. This will set at once, and become hard and impervious to water, so that the frost will not crumble it. In the spring American cements may be used, mixed with more or less lime, according to their quality, and that of the lime. The Roman cement is mixed in small quantities, very thin, and intimately mingled at once with fine, sharp sand. This mortar, while still liquid, is mixed with coarser sand and clean and sharp gravel, and is placed in the mould, larger stones being laid in at the same time, and the whole tamped, jarred, and leveled, before it has time to set. The moulds must be made tight, well battened, and clamped, to prevent warping, and so as to be easily taken apart.

Ripening Pears.—*H. Lloyd*, Chester Co., Pa.—The Duchesse d'Angouleme is a mid-autumn variety, and should be gathered while still hard, before it shows any signs of ripening, and be kept in close barrels or boxes in a uniform low temperature. When the pears change color and become soft, they are in condition to be eaten. An excellent method with small quantities of these and other pears of the season, is to place them in a single layer upon a blanket, and cover them with another in a cool place. The Vicar of Winkfield, though usually regarded as a cooking pear, may, by proper treatment, be made a very acceptable dessert fruit. Let the pears hang until danger of frost; gather and pack in tight boxes or barrels, and on the approach of cold weather take them to a dry cellar. Look to the fruit in December and January, and if some specimens are ripening, remove the fruit to a warm room, where it will soon come into eating condition.

Cranberry Culture.—*Adam Fisher*, Hardy Co., West Va., and others, have asked us to give information on the subject of cranberry culture. The culture of the cranberry is, from beginning to end, peculiar. It can only be successfully undertaken in certain localities, and every step is quite unlike those in the cultivation of any other fruit crop. Useful information could only be given in the *American Agriculturist* in a series of articles, and these would not be in a convenient form for frequent reference. In view of the difficulty of treating such special cultures in a useful manner in the paper, we have published in the pamphlet form, treatises upon Onions, Tobacco, Hops and others. The culture of fruits is treated in several bound volumes, among which is "Cranberry Culture," by Joseph J. White, a volume of 126 pages, and one of the most complete special treatises, of which we have any knowledge. From the selection of the location, to marketing or using the fruit, it is full on every point. One who undertakes to grow cranberries, especially if a novice, needs a guide like this, to which he can frequently refer in order to meet each of the many obstacles that may occur from time to time.

Legal Protection for Orchards, Etc.—*V. Newmark*, Solano Co., Cal., asks us: Has the owner of an orchard, vineyard, or melon patch any rights, which the public in general or the small boy in particular are bound to respect? —At the old common law the taking of anything which is attached to the soil, like apples or grapes, was not a larceny. That offence, which is the wrongful taking and carrying away the personal property of another, was not held to embrace the taking of real property. But now both in England and in this country statutes have been enacted, enlarging the common law doctrine so as to meet the requirements of a more advanced age; and in most of the States there are provisions for the very case inquired about by Mr. Newmark. For example in Michigan, a clause of the statutes reads as follows: "Every person who shall wilfully commit any trespass by entering upon the garden, orchard, or other improved land of another without the permission of the owner thereof, and with intent to cut, take, and carry away, destroy or injure the trees, grain, grass, hay, fruit, or vegetables there growing or being, shall be punished by imprisonment in the county jail not more than thirty days, or by fine not exceeding twenty dollars." It is fair to presume that there is a similar provision in the statutes of California.

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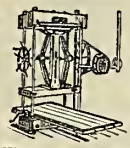
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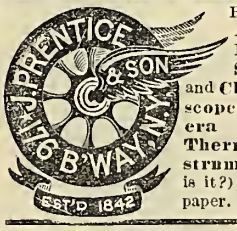


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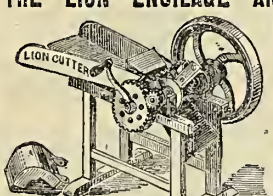
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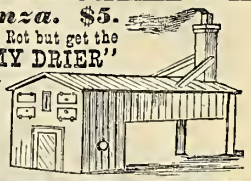
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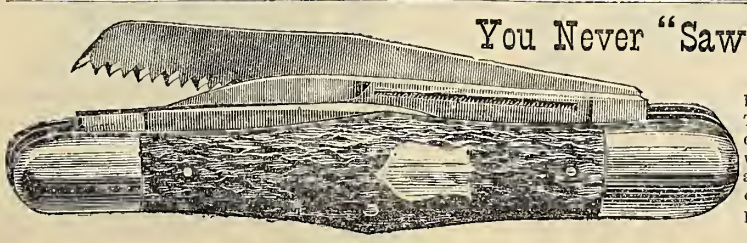
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MARTIN AMBER

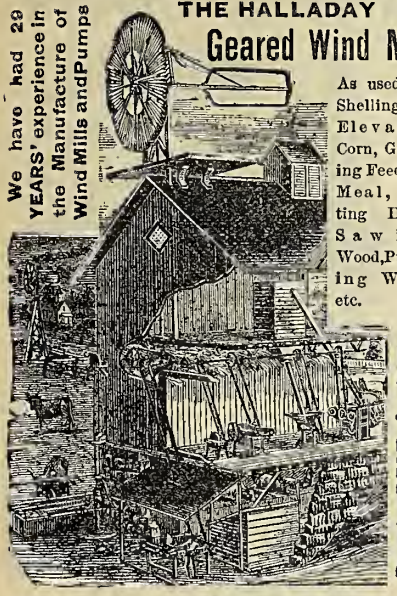
SEED WHEAT. I offer ten acres yield of this remarkable and popular new wheat, **twice cleaned,** and **clear of rye, trash, or weeds.** Its tillering properties are so great as to need about half the usual amount of seed. A great yielder, and excellent for flour. By freight or express, ¼ bu., $1.00; ½ bu., $1.50; 1 bu., $2.50. By mail (post paid) 1 lb., 40c.; 4 lbs., $1.00. **Brandywine Nursery.**
F. C. BIDDLE, CHADD'S FORD, PA.

EVERY FARMER HIS OWN MILLER

THE HALLADAY

Geared Wind Mill

We have had 29 YEARS' experience in the Manufacture of Wind Mills and Pumps



As used for Shelling and Elevating Corn, Grinding Feed and Meal, Cutting Hay, Sawing Wood, Pumping Water, etc.

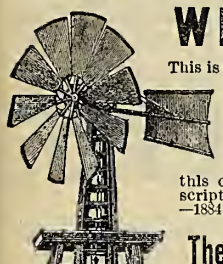
Buy the BEST, for in the end it is the CHEAPEST.

Send for Catalogue illustrating the above machinery; also Pumping Wind Mills, Pumps, Tanks, Noyes' Haying Tools, Horse Powers, Jacks, &c.

Give depth and location of your well; quantity of water wanted. State also what machinery you wish to operate, and we will quote you a special price for the entire outfit, or any part thereof. Reliable Agents wanted in all unassigned counties.

U. S. Wind Engine & Pump Co., Batavia, Kane Co., Ill.

THE DANA CENTRIFUGAL-GOVERNOR WINDMILL.



This is the best working, and the most powerful Wind-Engine in the world, because of—*first*, the superior excellence of its self-regulating mechanism, and *second*, the better form and position of its sails. The facts and reasons which support this claim are set forth in our Descriptive Catalogue, Second Edition—1884, for which apply to

The Dana Windmill Co.,

FAIRHAVEN, MASS., U. S. A.

7,000 CHALLENGE WIND MILLS.



IN USE IN EVERY State and Territory of the U.S. It is a sectional wheel, has been made by us for 15 years, and has never blown down without tower breaking, a record no other mill can show. **MILLS SENT ON 30 DAYS TEST TRIAL. BEST FEED MILLS, CORN SHELLERS, ETC. GOOD AGENTS WANTED** in all unassigned territory. Catalogues free. **CHALLENGE WIND MILL AND FEED MILL CO.**, Batavia, Kane Co., Ill.

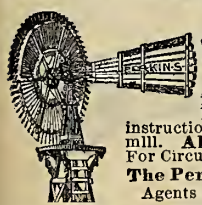


THE CHAMPION WIND MILL POWER

The Best in the World.

It is perfectly self-regulating, and presents no unnecessary surface to the wind. Pronounced by millwrights and mechanics to be superior to all other mills made. Do not buy until you have investigated the Champion. All information regarding the mill free.

POWELL & DOUGLAS, Waukegan, Ill.



THE PERKINS' Wind Mill

is the Strongest and Best Self-Regulating Wind Mill made. Full instructions for erecting sent with the first mill. **All Wind Mills warranted.** For Circulars and Prices address

The Perkins' Wind Mill & Ax Co.,

Agents wanted. **Mishawaka, Ind.**

18,000 Carpenters and Farmers

now use our **Late Make Filers** to file saws, so they will cut **faster** than ever. **Teeth** all of **equal size**, Pitch and Bevel. Single one sent free on receipt of $2.50, where no Dealer keeps them for sale. A discount to Dealers or others wishing to sell. For Illustrated Circulars, *Testimonials* from persons who use them, etc., address

E. ROTH & BRO., New Oxford, Penna.

Post-Office Money Orders make payable at Gettysburg, Pa.

ADAMS BARN FLOOR Horse Power.



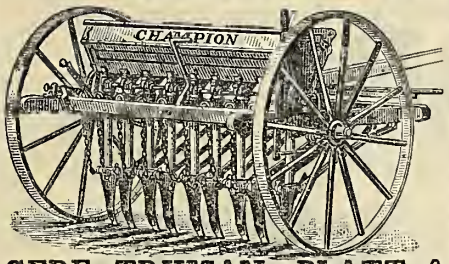
2 Horse Power, 4 ft. Jack, Belt & 22 ft flat Belt $40. 4 Horse Power, 4 ft. Jack Belt & 22 ft. flat Belt $55. 4 Horse Power, 5 ft. Jack, Belt & 25 ft. flat Belt $57.

This power is easily folded when not in use. Just the thing every farmer wants who has feed to cut, corn to shell, or anything one or two horses can do. Agents Wanted. Send for Circular and Prices. **SMITH & WOODARD, Kalamazoo, Mich.**

Champion Grain and Fertilizer Drill.

POSITIVE FORCE FEED DISTRIBUTERS.

FERTILIZER ATTACHMENT



Unequalled, and is warranted to distribute accurately, evenly and easily *any* commercial fertilizer—wet or dry.

Draft light and easily handled. Construction simple. Materials and workmanship the best. We also make the **WHIPPLE SPRING TOOTH SULKY AND FLOATING HARROWS, CULTIVATORS, &c.**

These HARROWS are adapted for use on all kinds of soil, and are the best *pulverizers* known. No farmer can afford to be without one. Ample time given for trial before settlement. Attachments for sowing grain, grass-seed, and fertilizers, furnished with Sulky Harrows when desired. Send for pamphlets describing latest improvements in Harrows and Drills

GERE, TRUMAN, PLATT & CO., Owego, Tioga County, N. Y.

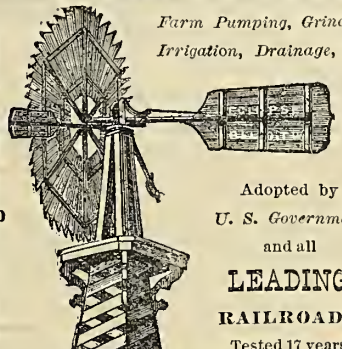
"ECLIPSE"

The Original Self-regulating Solid Wheel.

VICTORIOUS AT WORLD'S FAIRS.

Centennial, '76, Paris, '78, Australia, '80, Atlanta, '81, Chicago Railway Exposition, '83.

The Strongest Mill Built.



Farm Pumping, Grinding Irrigation, Drainage, &c.

TWENTY SIZES. 3 4 to 40 Horse Power.

Adopted by *U. S. Government* and all LEADING RAILROADS.

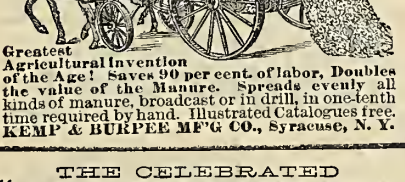
Tested 17 years.

Also, Standard Feed Grinders, Pumps for House, Farm and R. R. use, and a full assortment of Stock and Reservoir Tanks. Address.

ECLIPSE WIND ENGINE CO., Beloit, Wis.

L. H. Wheeler, Boston, Mass. Malvin B. Shurtz, Baltimore, Md.

KEMP'S MANURE SPREADER PULVERIZER and CART COMBINED.

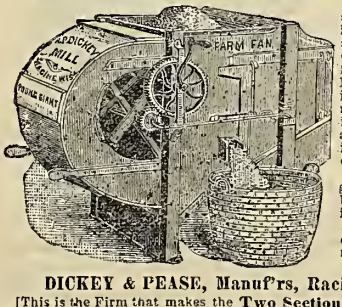


Greatest Agricultural Invention of the Age! Saves 90 per cent. of labor, Doubles the value of the Manure. Spreads evenly all kinds of manure, broadcast or in drill, in one-tenth time required by hand. Illustrated Catalogues free.

KEMP & BURPEE MF'G CO., Syracuse, N. Y.

THE CELEBRATED

"A. P. DICKEY" FANNING MILLS.



For Farm and Warehouse use for all kinds of Grain and Seeds. These Mills are used in every corner of the civilized world, and for cleaning almost everything. They are guaranteed to be superior in all respects to any other Mill made. Address

DICKEY & PEASE, Manuf'rs, Racine, Wis.

[This is the Firm that makes the **Two Section Cast-Iron Field Roller** and **"Peerless" Corn Sheller.** Their goods are always considered among the best made.]

THE—

"STANDARD" FARM FEED MILL



MANUFACTURED BY

R. L. ORR & CO.

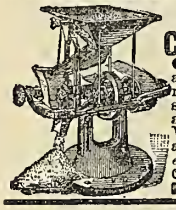
LIMITED,

PITTSBURGH, PA.

Improved 1884.

Price Reduced. Send for Circular.

PORTABLE CORN & FEED MILLS



Corn and Cob Mills, 18 sizes, adapted for all kinds of power. Warranted to do as **good work** as Buhr stone, and to give satisfaction. We guarantee them to do all we claim for them. Will give a **trial** *of ten days*, and if not as represented, can be *returned at our expense.* **AMERICAN GRINDING MILL CO., 81 & 83 N. Clinton St., Chicago, Ill.**

☞ Send for Catalogue and Price List.

$60. 5-TON



Iron Levers, Steel Bearings, Brass **TARE BEAM. JONES, HE PAYS THE FREIGHT.** Sold on trial. Warrants 5 years. All sizes as low. For free book, address

JONES OF BINGHAMTON,

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DAVIS STUMP PULLER



Lifts **20** to **50** tons worked by two men; 5 sizes. Price, $35 to $70. Stands on runners. Circulars free.

H. L. BENNETT, Westerville, O.

COMMON SENSE POTATO DIGGER.



Don't be deceived by Imitations.

This is reliable. Price $12.

Manf'd by C. E. MANN & CO. GENEVA, ILL.

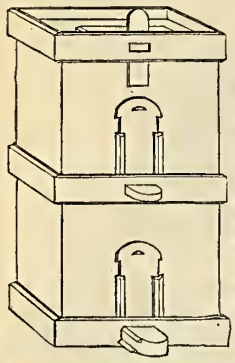
The only low-priced successful Digger known.

☞ **NO FARMER SHOULD BE WITHOUT**

DARNELL'S PATENT FURROWER AND MARKER! SEND FOR CIRCULAR

H. W. DOUGHTEN Manufact'r, **Moorestown,** (Burlington County), **N. J.**

GUNS & **1000 Novelties**—PRICE LIST FREE. **60** page CATALOGUE, **3 Cts.** **112** page CATALOGUE, **6 Cts.** Send 1 cent P. Stamps. **CHAS. FOLSOM, 106 Chambers St., N. Y. City.**



To Bee-Keepers.

Watson's Standard Bee-Hive

is the only one in the world that is an absolute safe-guard against loss in swarming, and the only one in which swarms can be sent in perfect safety to any point in the country, in any season of the year. Send for Price List and full Descriptive Circular, etc.

E. C. WATSON,
1180 Dean St., Brooklyn, N. Y.
(Patent applied for).

The BUYERS' GUIDE is issued Sept. and March, each year: 224 pages, 8½ x 11½ inches, with over **3,300** illustrations—a whole picture gallery. Gives wholesale prices *direct to consumers* on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, drink, eat, wear, or have fun with. These invaluable books contain information gleaned from the markets of the world. We will mail a copy **Free** to any address upon receipt of the postage—8 cents. Let us hear from you. Respectfully,

MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.

T. S. HUBBARD, FREDONIA, N. Y. HEADQUARTERS. Authorized General Agent.

THE NEW NIAGARA WHITE GRAPE

Now offered for sale to the public without restrictions for the first time. 2 year Vines, $2.00 each. Liberal commission to dealers and the trade. **Agents wanted. Outfit Free.** All Vines sent out under seal of **Niagara White Grape Co. None Genuine Without.** Also a large general stock of **PRENTISS** and other **GRAPE VINES, STRAWBERRIES, &c.** Address as above.

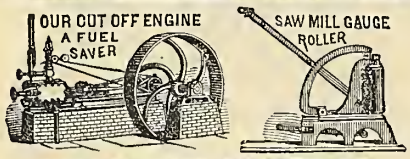
GRAPE VINES

HEADQUARTERS for NIAGARA, now offered without restrictions to planters for first time. **2 yr.** vines, mail, **$2** each. None genuine without seal **"Niagara White Grape Co."** Special Terms to Agents.

Also other Small Fruits, and **all old and new varieties of Grapes.** Extra Quality. Warranted true. Cheap by mail. Low rate to dealers. Agents wanted.

General Agent for the NEW WHITE GRAPE **NIAGARA**

THE LARGEST STOCK IN AMERICA. Prices Reduced. Illustrated Catalogue FREE.
T. S. HUBBARD FREDONIA New York.



Address, TAYLOR MFG. CO.
(Please Mention this Paper.) Chambersburg, Pa.

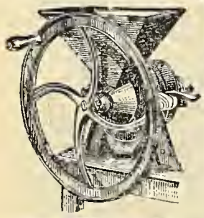


CORN SHELLER!

(Wood's Patent.)

Will shell one bushel of Corn in 4 minutes.

Write for circulars and full particulars to
Lehigh Valley Emery Wheel Co,
LEHIGHTON, PA.



Farm Grist Mills and Corn Shellers.

Over 30,000 Now in Use. Every Machine is fully Warranted. Price of Mills, $15 to $40. Shellers, $5. Don't buy a **Mill** or **Sheller** until you have seen our terms and Illustrated Circular. Address
LIVINGSTON & CO.,
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COOK FEED FOR YOUR STOCK

With the **TRIUMPH STEAM GENERATOR**

It will save ⅓ to ½ of your feed, and your stock will thrive better and fatten quicker. Send for illustrated circular. Address
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DO YOU WANT A DOG?

If so, send for DOG BUYERS' GUIDE, containing colored plates, 100 engravings of different breeds, prices they are worth, and where to buy them. Also, cuts of Dog Furnishing Goods of all kinds. Directions for Training Dogs and Breeding Ferrets. Mailed for 15 cts.

ASSOCIATED FANCIERS,
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NO STANCHIONS, WILSON'S FASTENER WILL Chain or Release all the cattle in a stable at once, and in a moment. Address, **D. E. WILSON,** Glenville, Md.

The Arapahoe Cattle & Land Co. Offer for sale part of their capital stock. Over 6,000 head Graded stock, 15,000 acres fenced. Ranches and outfits complete, will stand the closest investigation. Stock will pay 15 per cent this year. For particulars, address FRANK A. JOSLIN, Denver, Col.

DUTCH BULBS

OF THE FINEST QUALITY.

Directly imported from the most reliable growers of Holland, and personally selected by a member of our firm. Catalogues mailed free.

JOHNSON & STOKES, Seedsmen,
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STARK NURSERIES.

The Oldest in the West. Established 1835. 300 Acres. Trees, Small Fruits, Vines, Shrubs, Roses, Root Grafts, Stocks, Seedlings, young Ornamentals, etc. Unequalled stock of New and Rare varieties, including the wonderful **Marianna,** the earliest, best, and most beautiful of plums; as nearly curculio-proof as any variety known. **TREES,** our Specialty. Fruit, Ornamental, and Evergreen Planters supplied at wholesale prices. Address,

STARK & CO., Louisiana, Mo.

IF YOU WANT TO KNOW all about **JOHNSON GRASS** send to HEADQUARTERS for Pamphlet. Address,
HERBERT POST, Postburgh, Dallas Co., Alabama.

$40 a month and Expenses. Men wanted to sell **NURSERY STOCK.** Address **D. H. PATTY,** Nurseryman, Geneva, N.Y.



Newton's improved **COW TIE** holds them firmly, draws them forward when lying down, pushes back when standing, gives freedom of head, keeps clean. **E. C. NEWTON, Batavia, Ill.**

$10.00 A Pair for Bronze and Narragansett Turkeys. Hookertown Brand. Bred 11 years for size and beauty. 20 per cent discount for orders before Nov. 21st. T. Bunker on Turkey Raising, 25 cents.
Address, **W. CLIFT, Hadlyme, Ct.**

CENTENNIAL FANNING MILL.



The best mill in the world. It separates **Oats, Cockle** and all foul stuff from wheat. It is also a **Perfect Cleaner** of Flax, Timothy, Clover, and all kinds of Seeds. The great improvement over other mills is that it has **Two Shoes.** It is especially adapted to warehouse use. Send for descriptive Circular and Price-List.

S. FREEMAN & SONS, Racine, Wis.

WANTED. A purchaser for a farm within ¼ mile from Denton, Eastern Shore of Maryland. **201** acres, including valuable Shad and Herring Fishery; Peach and Apple Orchards; Strawberries. Valuable young Pine Timber; 2,000 cords of wood can be cut on tract. Title perfect. Address M. S. Mutchler, Dentou, Md.

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MILK-MAID BRAND.



TRADE MARK.

Milk FOOD

For Infants and Invalids.

Recommended by leading Physicians throughout the world. It consists of choice cooked cereals, refined wheat gluten, and Condensed Milk, and contains the property of diastase, which converts the starch in the Food into soluble and easily digested dextrine and sugar, when used according to the directions. It is not only **invaluable** for SICK and WEAKLY INFANTS and INVALIDS, but also the best known **Food for well children. When more well children are fed with it, fewer will become feeble.** *Until the period of dentition* the BEST substitute for MOTHER'S MILK is the ANGLO-SWISS CONDENSED MILK.

Anglo-Swiss Condensed Milk

Is the BEST and CHEAPEST

FOR GENERAL USE,

And has a LARGER SALE than all other brands combined.

ANGLO SWISS { Chocolate & Milk / Cocoa and Milk / Coffee and Milk } *Convenient & Economical.*

33 Million Tins of these goods sold in 1883.
SOLD BY DRUGGISTS AND GROCERS GENERALLY.

FAMILY BIBLES! 2500 Engravings. New type and features Prices greatly reduced. Big discounts to agents. H. L. WARREN & CO. 1117 Chestnut St. Philadelphia.

LAND IN CENTRAL KENTUCKY.

BLUE GRASS AND TOBACCO LAND at **$10** to **$75.** Unimproved timber land at **$2** to **$10** per acre. Address C. M. PHILLIPS & CO., Lebanon, Ky.

HAYSEED,

OR

How to Develop the Speed in Trotter or Pacer, and Steer Him in a Race.

This book is written by an author every way competent to handle the subject, and combines the experience of both old-time and modern trainers and drivers, and respecting the development of pacers, manner of shoeing, driving, and handling generally, nothing has been written until now. The Rules of the National Trotting Association, as amended by that body at their last meeting; also, the complete list of all horses which have trotted or paced a heat in 2:30 or better, with the pedigrees so far as known, is combined in this work. No owner of road or race-horses should be without this book. Remember that horses must have the opportunity in order to distinguish themselves. Enclose postal notes, currency or silver, at our risk.

PRICE, 50 CENTS.

Sent post-paid, to any address, on receipt of price. Address

HAYSEED COMPANY, Toledo, Ohio.



50 Chromo Cards, (every card embossed) Landscape, Hand Floral, Bird, Motto, &c. name on, 10c., 4 pks. 30c., 13 pks. $1, 6 pks and ring 60c. 11 pks and your choice of Needle Casket or 4 blade Pearl Handle Knife $1. CrownPr'tg Co., Northford, Conn.

PRESSES, TYPE, CHROMO CARDS, Scrap Pictures, &c. Send for price lists.
E. C. DUNN & CO., 2106 Orkney St., Philadelphia, Pa.

ELEGANT pack of **50** Floral Beauties, Mottoes, Verses, &c. name on, 10c. 10 pks. & Silver Napkin Ring or Ag'ts' Sample Book, $1.00. TODD & Co., Clintonville, Conn.

50 Chromo Cards, no 2 alike, with name, and six Latest Songs, 10 cents.
J. S. PARDEE, 411 7th ave., N. Y.

MELLIN'S

TRADE MARK.

FOR INFANTS & INVALIDS

FOOD

THE only perfect substitute for Mother's Milk. The most nourishing diet for invalids and nursing mothers. Keeps in all climates. Commended by Physicians. Sold everywhere. Send for our Book on the Care and Feeding of Infants. Sent free.

DOLIBER, GOODALE & CO., Boston, Mass.



Our Work Appreciated.

A President of a western college, in making inquiries concerning a suspicious enterprise, writes us: "You are death on bugs—especially humbugs. The attention you give to these last, prevents many thousands of dollars from passing annually to the pockets of knaves from the pockets of fools." If our correspondent had substituted millions for thousands, he would have been nearer right. It is not fair to consider that all who are caught by swindling schemes are fools. The bait often so skillfully conceals the hook, that many honest and well meaning persons do not suspect fraud until they are caught. It is persons of this kind that we have worked, and shall continue to work, to protect and warn.

A New Turn to an Old Tune.

It is not now a "retired physician whose sands of life are fast running out," or a "returned missionary," nor even some one who was captive among the Indians, but plain "Dr. H. James," who "was experimenting with the many herbs of Calcutta," when he "accidentally made a preparation which cured his only child of consumption." That is the new part. The old part is, "The doctor now gives this recipe free, only asking two two-cent stamps to pay expenses." The chap lives in Philadelphia. If any one wishes to know more about this accidental remedy, he can send for the recipe, and will no doubt receive, after the good old style, one directing the "Calcutta herbs," in names which are meaningless jargon.

A Postal Card Album Competitor.

Those of our readers who saw some months ago in various papers a request from a retired editor and ex-publisher for Postal Card Autographs to gather into an Album, will appreciate the following:

> EDITOR OF AMERICAN AGRICULTURIST, 751 Broadway, New York City.
>
> I would like to have the Postal Autographs of *all* the subscribers of the *American Agriculturist*.
>
> ELLA M——, Guyadotte, Cabell Co., West Va.
>
> August 21st, 1884.

We do not give the full address, as it might be used for the same purpose that Postal Card Autographs are wanted. What that purpose is, this lady evidently sees, and in her neat way speaks volumes of satire in a few words.

The ways of Pension Claim Agents.

L. W. Allen, Hillsborough County, Fla., asks: "Is this fair?" A firm of claim agents in Washington, D. C., had agreed to undertake his pension claim, for which he paid the lawful fee of ten dollars. Mr. A. has recently received notice that Congress passed a law in July last, allowing attorneys the sum of twenty-five dollars, and the agents wished him to pay the increased fee. Hence his question, "Is this fair?" Of course Congress would not pass a law to affect contracts already made. If the agents do not wish to abide by their former contract, it would be "fair" for them to return the papers and the money paid in advance. They can certainly have no legal claim for more. Pension agents, so far as we have known them, will take all that they can get. The notice, while it implies that the law warrants the added charge upon an old contract, does not directly assert it. We would advise you to consult the Member of Congress for your district. Perhaps he may inform the agents as to the legal aspects of the case.

Not a Part of The "Fool Crop."

An inventor of Hydraulic Machines thinking, as he says, we might wish its aid in "investigating this year's Fool Crop," sends us a circular he received from a "Mining and Smelting Company," its headquarters being —of course—in Cincinnati. The circular states that the Directors of the Company have agreed "to adopt the latest improvements in mining machines and implements, for the purpose of developing to the greatest advantage their several valuable mines" in Colorado. Hence they call upon owners of patents for models or drawings and specifications of their improvements. This company "offer a premium of five hundred dollars cash for each patent which is adapted for use on its properties." It will also "donate to each competitor twenty-five shares, value ten dollars per share."

NOT SO LIBERAL AS IT LOOKS.

The liberality of this offer is less apparent when we read its conditions. Each competitor is charged an entry fee of fifteen dollars, which is to be "forwarded at the same time as the models, drawings, etc.," and these, of course, "must be prepaid." It is hardly necessary to add that our correspondent having sense enough to perfect an invention, was too prudent to purchase fifteen dollars worth of information as to the ways of this enterprising Cincinnati Company.

Neither Prize nor Paper.

"O. V. W.," a P. M. in Benton Co., Ark., writes us, that he subscribed for the "Sunny South," published in Brown Co., Texas. He was informed that he was entitled to something from a "grand drawing," and he sent the necessary directions for shipping, etc. Nothing came, and he has "written to them time and again, telling what number it was, etc., but to no avail." Moreover Mr. W.'s wife also subscribed to the same paper; she was sent a similar certificate to sign, but no prize came, and not a single copy of the paper.

PAPERS WITH LOTTERY ATTACHMENT SUSPICIOUS.

Any publisher who proposes to aid his circulation by means of a lottery—no matter if he calls it a grand distribution, starts with the intention of violating the laws of the United States, and generally of his own State. Experience has shown, that there is no difficulty in the way of sending money to such papers, but when prizes are to be drawn, or if they are alleged to be drawn, it is found out that the post office laws and rulings prevent their transmission to the subscribers. All who are tempted to subscribe to a paper, no matter where it may be published, that proposes by "distributions," "drawings," "gift enterprises," etc., to distribute prizes or premiums *by chance*, should recollect that they aid in an open violation of the laws of the United States.

That Toll-gate Open Again.

Advertisements, offering to send to applicants a puzzle picture "The Toll-gate," appeared at one time, several years ago, in nearly every paper. This "picture" was a card about the size of an ordinary envelope, with a very coarse attempt at a puzzle on one side, and on the other the advertisement of a book by a quack Doctor, a catalogue of the contents of which decency prevents us from publishing. Having heard nothing of late of this book and the peculiar method of bringing it to the notice, especially of young people, we supposed that like so many things of the kind, it had died out. It seems that this gate to nastiness was only temporarily closed. The "Toll-gate" is out in a new form, called the "Shoo! Fly!" edition. It is a picture almost as coarse as the former one, and has an enormous insect in the centre, indicating what may be seen by turning over the card, Humbug! Besides the advertisement of the book; there is also one of "Dr. Abbey's Great Specific for Skin Diseases." One who claims to have a "Specific," has no right to the title "Doctor."

PLEASE DO WHAT YOU CAN.

A subscriber in Dutchess County, N. Y., and no doubt a parent, writes us very much in earnest about the toll-gate, and asks us to do what we "can to prevent its transmission through the mails."

Petroleum vs. Stock-Gambling.

Most of our readers will recollect the great facilities that were offered to people everywhere to engage in the pleasures and excitements—and also the risks of Wall Street—by parties assuming the names of responsible brokers. This scheme was broken up by the arrest of the principal parties and shown to be a very hollow cheat. "Stock-gambling made easy," is no longer allowed, but people at a distance are provided with a means of easily getting rid of their money in speculations of another kind.

PETROLEUM.

Our subscribers in Michigan and other Western States are favored with circulars headed "Petroleum," which they are told is "fast becoming the favorite article for speculation." The circulars have the true ring, as they, of course, warn those who receive them that it is "dangerous and unprofitable in the hands of cunning manipulators." We are told that "with fifty ($50) dollars one can buy or sell one thousand barrels of Petroleum, although one hundred (100) dollars is a safer margin." Safer—of course much safer for the broker—when he gets it. This recent dodge to make money by pretending to induct farmers and others into the Mysteries of Wall Street is not likely to be enormously successful if we may judge by the way it is regarded by one in Michigan, who writes on the circular he sends us: "Thought this needed airing a little in your humbug columns."

1885
BEGINS NOW.

All **New** Subscribers for 1885, whose subscriptions come to hand before **October 31**, will receive the *American Agriculturist* for November and December of this year without extra charge.

The above applies to **All** new subscribers, from whatever source received — including Premium Clubs.

Those too distant to receive this number before **October 31**, will be allowed 10 days after its reception in due course of mail, to take advantage of the above in presenting the paper to their friends.

Agents, Attention!
Boys & Girls, Attention!
Clerks, Attention!
Ladies, Attention!
Clergymen, Attention!
Conductors, Attention!
Churches, Attention!
P.O. Clerks, Attention!
Merchants, Attention!
Miners, Attention!
Farmers' Clubs, Attention!
Everybody, Attention!

Do not fail to carefully read the Supplement of this October number, and see how easy it is to secure one or more of the large number of valuable and useful articles which are there described. Something will be found for every taste, or suitable for a gift to any friend. Will you have one or more of these good Premiums? A little effort secures them. **Try it.**

☞ SEE PAGE 452, SUPPLEMENT. ☜

Enlarging our Borders.

As the prosperous farmer from time to time adds to his acres and enlarges his domain, so the *American Agriculturist* has annexed country after country until it has girdled the globe, and has its readers in the most distant lands and the "isles of the sea." Its subscription books show long lists from every country where there are English-speaking cultivators of the soil. The lists of subscribers at some post offices in Australia and Tasmania are as large as they are at some of our home post offices in towns of similar population. English colonists everywhere find the *American Agriculturist* better suited to their circumstances and needs than are the agricultural papers published in their mother country. The number of subscribers in South America is large, and we are often solicited to issue an edition in the Spanish language.

An Erroneous Report.

In forwarding us a basket of fruit a New Jersey subscriber asks if Orange Judd is dead. This inquiry frequently made is doubtless due to a current rumor of his death, when he failed last year. In 1864, after returning from the army hospitals, Mr. Judd was afflicted with a severe attack of "malarial complaint." Indeed the September *Agriculturist* of that year said: "his health continued to fail and all the usual remedies and the skill of physicians seemed to avail nothing." Though he was subsequently relieved by "a decoction of blackberry root, beef tea, and cream," he has ever since complained of ill-health, with frequent sunstrokes. Indeed, indications of failing health appeared to increase as he approached the allotted threescore years and ten. Six years ago, the present managers were called to take charge of the business of the Company, Orange Judd having relinquished the Editorial management many years before. After his failure last year, the Company sent him up to their farm in Orange Co., N. Y., where it was hoped that the quieting influences of country life would bring mental and physical restoration. The physician there, however, Orange Judd stated, certified that he was still liable to sunstroke, and should keep aloof from his fellow men—which may in a measure account for these inquiries as to his decease.

Profitable Employment.

Persons having leisure time on their hands, or wishing profitable employment, should canvass for subscriptions to this journal. Special inducements presented on application to us. Many make very remunerative wages by securing the premiums we give for subscribers, and disposing of them for cash. One lady in particular has realized several hundred dollars monthly in this manner during the autumn and winter months.

The Publishers and Editors will be excused if they indulge in a little self congratulation over the great variety of matter, general artistic appearance and generous advertising patronage of this October number of the *American Agriculturist*. It signally demonstrates that treachery and trickery are no more successful now than over-reaching and systematic rascality have been in the past.

Our Great Special Present.

It is not Appleton's Cyclopædia, Price, - - $80.00
It is not Johnson's Cyclopædia, Price, - - - $42.00
It is not Chambers' Cyclopædia, Price, - - $25.00
It is not the Encyclopædia Britannica, Price, - $125.00

BUT THE

AMERICAN AGRICULTURIST

FAMILY CYCLOPÆDIA.

With over 700 Pages, 1,000 Engravings, and a copious Supplement by the Editor-in-chief of this paper for nearly a quarter of a century, which is PRESENTED to every Subscriber, at $1.50, (old and new), to the American Agriculturist for 1885. More convenient for every-day practical purposes, than any one of the above expensive works. For full particulars see page 452, Premium List.

Beautiful Birthday Presents.

Our superb Premium List presents many beautiful and appropriate articles for birthday gifts. There is a variety to suit every taste; and there is no more pleasing custom than this annual presentation of birthday souvenirs to one's kindred and friends.

Remember Your Pastor.

There are many articles in our Premium List this year, which make most appropriate gifts for your pastor; and a very little effort on the part of a few members of the congregation will secure one or more of these presents for your minister, for his wife, and for his family.

Two Engravings to Every Page.

Nearly one hundred engravings are employed in each issue of the *American Agriculturist* to enforce and make clear the thoughts of the many writers. When the monthly issues for a year are bound together, every subscriber has a large volume of more than five hundred pages, and over a thousand instructive engravings—or more than two pictures to each page.

Our Great Offer.

Our presesent subscribers will please show to their friends and neighbors page 452 of the Supplement, describing the New Family Cyclopædia, which every one of them can have who subscribes before December 1st, and pays the regular subscription price of $1.50 per year, and fifteen cents extra for packing and postage, making $1.65 in all.

The Forty-fourth Year.

The *American Agriculturist*, after long years of successful growth, will soon begin its forty-fourth year like a strong man ready to run a race. More thoroughly equipped than ever before, it will be the aim of the Publishers to make each succeeding issue surpass the preceding in all its valuable features. We are in daily receipt of letters filled with wonder at the marvelous success of the *American Agriculturist*. They cannot see how so much can be furnished for so little. This surprise will be still greater in the years to come.

We have to thank friends for forwarding us still another printed circular in the line of the Postal Card Album business, aiming at both the circulation and standing of this Journal. Further letters of the same character, marked "Private," have likewise been forwarded to us by the receivers, who are too honorable men to countenance tricky and underhanded operations.

We renew our request that Editors, Club-Raisers, Canvassers, and Subscribers, will oblige us by continuing to forward documents and letters, indicating that any subscription lists, or lists of club-raisers belonging to this Establishment, may have been treacherously and surreptitiously made. The Postal Album scheme has been pretty thoroughly ventilated all over the country, and we shall thank all our friends to aid us in exposing each similar fresh scheme for either securing the subscribers of this journal or impairing the good will of this Company. The very fact that letters are marked "Private," should not, when the purpose is so clearly transparent, deter the receiver from forwarding them to us if they are kindly disposed to do so.

TERMS TO CANVASSERS AND CLUB RAISERS FURNISHED ON APPLICATION.

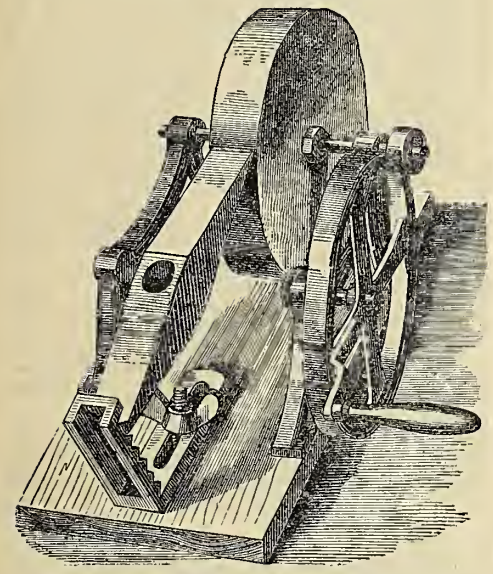
Valuable Books Presented

Every subscriber who sends us a new subscription for 1885, before Nov. 1st, and ten cents extra for postage on the book, making $1.60 in all, can order from us free and post-paid any one of the three following useful works:

FARM CONVENIENCES.

A PRACTICAL HAND-BOOK FOR THE FARM.

Published, February 20, 1884.



Over Two Hundred Illustrations describing all manner of Home-made Aids to Farm Work. None of these Contrivances are patented, and all farmers can readily make most of them for themselves.

A Manual of what to do and how to do it. Made up of the best ideas from the experience of a large number of practical men. Every one of the two hundred and forty pages and two hundred engravings, teaches a lesson in itself in Farm Economy.

This invaluable book contains simple and clear descriptions of labor-saving devices, for all departments of Farm Work. It abounds in important hints and suggestions, to aid farmers in the construction of these labor-saving devices. The volume is, so to speak, a complete hand-book for doing every-day work quickly and readily. Among the many subjects treated are:

Bins for Oats,
Movable Hen's Nests,
Hints for the Work-shop.
Business Habits,
Relief of Spavin,
Tool Boxes,
Watering Places for Stock,
Doors,
Harrows,
Feed Racks for Sheep,
Stalls,
Cements,
Prevent Washing of Hill-Sides.
Unloading corn,
Lime and Lime Kilns,
Mixing Cement,
Fastenings for Cows.
Management of Young Bulls,
Boat Building,
Hay Racks,
Manure,
Making Hinges,
Shaving Horses,
Ventilating Fodder Stacks,
Clearing Lands,
Troughs,
Hog Killing,
Improved Dump Carts,
Stone Boats,
Fall Fallowing,
Ringing and Handling Bulls,
Racks for Sheep.

Price, Post-Paid. $1.50.

HOUSEHOLD CONVENIENCES

Fully Illustrated with Over Two Hundred Engravings.

Published, February 20, 1884.

Every House-keeper can save many times the cost of the work, by providing herself with a long list of cheap, easily constructed labor-saving devices. The secret of success in house-keeping is knowing how to do things quickly and well. "Household Conveniences" is a key to this secret.

A Most Complete Volume, filled with Valuable Hints and Suggestions, for doing all kinds of Work in the Household.

None of these Contrivances are Patented, and all Housekeepers can readily make them for themselves.

CHAPTER I.—ABOUT THE HOUSE.

Hammocks and Tents, Garden Seats, Window Screens and Awnings, Clothes Lines, Ash Bins and Ash Sifters, Wood Racks, Disposal of House Slops, Crematories, Snow-Plows, Leaches, Lye and Soap, Screens, Carriage Steps, Vines at the Door, Cisterns, Fruit Driers, &c., &c.

CHAPTER II.—THE CELLAR.

The Cellar in General, Musty Cellars, Ventilating a Cellar, Ice Boxes or Refrigerators, Preserving Ice, Meat Safes, Water Filterers, Milk Cupboards, Cheese-Presses, Butter Stamps, Cellar Windows, Coal Bins, &c., &c.

CHAPTER III.—THE KITCHEN.

Flour-Boxes, Spice-Boxes, Folding Ironing-Tables, Side-Tables, Bread or Kneading-Boards, Baking-Tables, Wash-Benches, Wash-Sinks, Graters and Slicers, Clothes-Driers, Summer-Drinks, Cooling-Frames, Coffee-Mills, Neat Wood-Boxes, &c.

CHAPTER IV.—PANTRIES AND CUPBOARDS.

Chimney and Corner Cupboards, Well Arranged Pantries, Poison Boxes, Store-Room Boxes, &c.,&c.

CHAPTER V.—THE DINING ROOM.

Cases for Silver, Convenient Side-Tables, Table Decoration, Inexpensive Decoration Generally, Extension Leaf for a Common Table, How to Carve, Fruit Cans.

CHAPTER VI.—THE SITTING ROOM.

Plant Shelves, Rustic Window Boxes, Picture Frame, Vines in Window, Decorative Art, Flower Boxes, Hanging Baskets, Care of Carpets, Carpet Sweeping, Hat Racks, Stove Pipes, Lamp Shades, Canary Birds, Ornamental Wood Boxes, Paper Holders, &c., &c.

There are other Chapters on the Library, the Sewing Room, &c., &c.—all making the most exhaustive work of the kind extant. The Volume abounds in common sense hints and suggestions from scores of experienced house-keepers, is within the reach of all, and should be a daily consulted work in every home.

Price, Post-paid, $1.50.

THE NEW AMERICAN Dictionary.

A Most Valuable Volume.

A Concentrated collcetion of most useful information, including a **Pronouncing DICTIONARY,** of upwards of **50,000 WORDS,** with their Definitions and accurate Pronunciation, a Beautifully Bound Volume, of

600 PAGES—1,000 ENGRAVINGS.

Fully as good for all practical every-day purposes, as Webster's Unabridged Dictionary.

☞ **See what it contains:**

1st.—The Dictionary itself, given in **300** pages (3 columns in each page), supplies all the ordinary wants of a Family or Personal Dictionary, and is *fully worth the price of the whole book.*

2nd.—The next three hundred pages embrace **Forty-five pages of Engravings, illustrating a great number of Animals, Birds, Fishes, Plants, Implements, etc. Over one thousand in all.**

It likewise embraces, among others, the following very useful and valuable facts:

AUTOGRAPHS of all Presidents of the United States.
Explanation of all the 34 words used in the METRIC SYSTEM, now coming into general use in this country, such as *Metre, Centimetre, Litre, Hectare,* etc.
Alphabetical List of American Geographical Names, with their Pronunciation, Derivation, and Meaning.
Popular Names of States and Cities, as "Buckeye State," "Hawkeye State," "Keystone State," "Hoosier State," "Monument City," etc., and why so called.
How to Pronounce Difficult Words. (30 pages.)
Many Valuable Suggestions on How to Speak with Elegance and Ease. (24 pages.)
List of a great number of Slang and Vulgar Words and Phrases to be avoided. (24 pages.)
The History of the United States Flag.
The Area and Population of each of the United States and Territories at each Census from 1790 to 1880.
United States Public Lands — the Amount in each State and Territory: where situated; places of all the Public Land Offices, etc.
Public Land System of the United States.
About Free Homesteads on the Public Lands.
Each year's Prices, for 53 years, of Wheat, Flour, Corn, Cotton, Beef, Hams, Butter, Sugar, Coffee, Bar and Pig Iron, and Coal.
History of American Petroleum.
Tables for reckoning Interest at 4, 5, 6, 7, 8, and 10 per cent, from one day to one year, from $1 to $1,000.
Weights and Measures of the United States and of other countries.
Metric System of Weights and Measures, in full.
Vocabulary of Business, giving an Interesting and useful Explanation of 340 Words and Terms used in Business, such as "ad valorem," "Broker," "Checks," "Days of Grace," "Drafts," "Ejectments," "Foreclosure," "Guarantee," "Invoice," etc., etc. (8½ pages.)
How to Organize and Conduct Public Meetings, Useful Suggestions.
Legal Weight of a Bushel in the different States.
Number of Plants that will Grow, and the Quantity of Seeds to Use on Plots of Ground.
Table of Wages by the Day.
Convenient Tables for Reckoning Wages.

Price, Post-paid, $1.00.

To Bring up a Wornout Sandy Soil.—Use green crops plowed in. When you can turn under a good crop of clover in July or August, before sowing wheat, your land is made. Lime harrowed in after turning the clover under, is always beneficial.

Fall Plowing for Corn?—On heavy clay soils—Yes. Light or sandy soils—No. Soils likely to "wash" by winter rains—No. It is usually best to manure, plow, harrow, roll, mark, and plant, if possible at once. With a manure spreader and teams enough, all goes on well at the same time.

Bladder Plums.—S. T. Nichols, Hartford Co., Conn., writes us, that he had a tree, the fruit of which was blasted and bladdery, and that the application of half a bushel of coal ashes caused it to produce healthy plums. The cure was probably due to some other cause, as coal ashes are almost inert. An absence of the fungus that causes the trouble, allowed the plums to mature.

Sending Fruits.—Many specimens of fruit sent us for inspection are perfectly useless when they arrive at our office table. Place any fruit in a stout and clean box—never use a cigar or perfume box—and avoid using cotton or any similar substance as packing. Pre-pay the full postage, or the express charges, as the case may be. An answer to questions concerning any fruit received at the office in proper condition, free of expense, is all that should be expected of us.

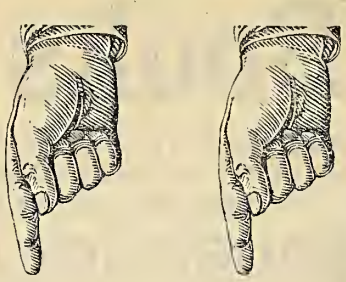
A Grindstone Treadle.—The position of the grindstone treadle in the article in the September *American Agriculturist*, page 362, is objected to by O. H. Leavitt, Hillsborough, N. H. He writes us: "When the treadle is hung at one end, and attached to the shaft in the middle, the foot of the operator needs to move through too much space. Fasten the treadle in the middle and attach the connecting rod at one end while the foot works upon the opposite end of the treadle.

Cedar Hedge.—Alfred Trigge, writes us from Hamilton, Canada, that he proposes to set out a Cedar hedge, and asks whether to plant in fall or spring. In cold localities like yours, spring is the better time. The lot to be inclosed by the hedge has now a board fence. The hedge should be planted several feet from the fence; it would be better to remove the fence before planting, and protect the hedge by a temporary guard of rails or strips. If the hedge is for shelter, Arbor Vitæ, Norway Spruce, or Hemlock, are preferable to Red Cedar, which is of very slow growth.

To Bleach Sponge.—J. E. Thompson, Volusia Co., Fla.—Before sponges are bleached, they should be freed of all the foreign matters they contain. These are sand and small stones, and shells, or fragments of shells. The sponges should, when dry, be thoroughly beaten and shaken, so long as any sand, etc., can be removed. Any bits or shells that still remain, may be dissolved out by means of Chlorohydric (Muriatic) Acid, diluted with about twenty parts of water. The bleaching liquid is made by dissolving what will of Bleaching Powder, the Chloride of Lime of the shops, about an ounce to a pint of water. When this solution has settled, pour off the clear liquid, and add the sponges just squeezed out of the acid water. After bleaching, the sponges should be washed repeatedly, until all traces of the bleaching liquid are removed. A good authority states that sponges may be bleached very white by a process that we have not tried. After the sponges have been cleansed as above, they are to be immersed in a solution of Hyposulphite of Soda, to which a small quantity of diluted Muriatic Acid has been added. No quantities are given; these must be determined by experiment. The Hyposulphite is not an expensive chemical, and is largely used in photography. We should try it at first in the proportion of an ounce of the salt to a pint of water, and increase the proportion if necessary.

Photographs for Everybody.—We are surprised at the cheapness with which a complete outfit for taking photographs may be obtained. The "Gem Camera," for example, is furnished by the Boston Camera Company, Boston, Mass., for five dollars, including all accessories for field work.

The Enterprise Meat Chopper.—We noticed this new and effective chopper when it first appeared. One of our associates was agreeably surprised on a visit recently made to the Enterprise Manufacturing Co., Philadelphia, to find over one hundred and fifty men working on their celebrated Meat Choppers, of which they have no doubt they will sell one hundred and twenty-five thousand this year.



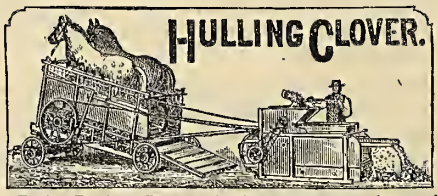
A Great Premium List.

The most tasteful, attractive, practical and desirable Premium List ever prepared, is presented with this October number to our friends and readers. It embraces about everything every member of every family wants—both useful and ornamental—selected with great care personally by the Publishers and Editors of this Journal, to meet the tastes and wants of its readers. All of the hundreds of these premiums can be secured without money, and with only a little labor. They are supplied to us at special prices by manufacturers, when not specially made for us, so that we are enabled to furnish them to our readers at very favorable rates. They are sold to, or made for us, at cheaper prices than for the regular trade, because of the public attention drawn to them, and their manufacturers, through the columns of the Premium List, which are printed by the hundred thousand. We are consequently able to supply them to our readers at correspondingly less prices. Never before was there such an opportunity presented for getting good things at good bargains. Several premiums, which have proved popular in past years, we again offer this year. Though a better quality of goods has been secured in many cases, we offer them at the same, or lower prices.

P. S.—It should be remembered that no name can in any case be counted for more than one premium. For example, the name of one who has already received the *American Agriculturist* Family Cyclopædia cannot be again counted towards another premium.

All About the Great West.

One of our Editors continues, on another page, notes of his recent extended tour through the far Western States and Territories. These Editorial notes will appear from month to month. But turn to page 476, Premium List, for the names of residents in the States and Territories, who are willing to answer letters, and give information regarding their respective localities free of charge.



Fearless Two-horse Power, positively **unequaled** for ease of team and amount of power, and Clover-huller that gives the most **unbounded** satisfaction. With this machine, shown above, as much money can be earned per day as with a Railway-power grain threshing machine. **Try it.** Fearless grain Threshers and Cleaners, Wood Circular-saw Machines, Fanning-mills and Feed-cutters, not excelled by any. Buy the best. Catalogue sent free. Address,
MINARD HARDER, Cobleskill, Schoharie Co., N. Y.

Extract from a letter written by John E. Roberts, of West Point, Ga., President of the National Game Breeder's Ass'n., in the Virginia Poultry Messenger.

"Not long ago, a correspondent writing to me regarding his fowls, and the diseases to which they had been subject, gave me his cordial acknowledgement for naming to him, *not a panacea* for *all* the ills and woes of a chicken's life, but a good common sense remedy for seven-tenths of their diseases. This is nothing more nor less than a standard preparation of Liebig Co.'s Arnicated Extract of Witch Hazel. If there be any article of sterling value it is this. For several years I have used it constantly, and in the earlier stages of cholera it is a certain cure; in the latter and more critical period it will cure a much larger percentage than any other preparation, and I have tried them by scores. For roup and catarrh in poultry, if applied with care, I have found it a most invaluable agent, the happy effect being at once apparent and satisfactory. But there is one thing that has long been a *bete noir* to breeders of Game fowl, for which this preparation is specific and unfailing in action. This is canker mouth and canker of the throat. Game fowls will fight, will pick each other up about the mouth, tearing out its lining about the head, eyes, &c. Before I began using Liebig Co.'s Arnicated Extract of Witch Hazel, I lost many cases, despite the use of all of the old and well-known remedies. Since its use, however, canker has no more terror than does the bleeding of a stag's comb after being trimmed. The preparation to which I have reference will cure ninety-nine cases out of a hundred. It is a grand medicine, and can be bought so reasonably by the bottle, or in bulk, that every poultry man should have it. For three years, in my letters to patrons and friends, I have invariably suggested its use, and when adopted, their thanks to me has been the inevitable result."

COL. F. D. CURTIS, OF CHARLTON, SARATOGA CO., N. Y., says: "I consider your Arnicated Extract of Witch Hazel to be a most valuable remedy for both man and beast. Every farmer ought to have it on hand. A handy and effectual remedy of this kind is what farmers have required, and with it much suffering can be saved, and no doubt many animals."

T. J. MCDANIEL, Esq., of Hollis Center, Maine, *and celebrated as a Raiser of Choice Breeds of Poultry, says:* "I have made use of the Arnicated Extract of Witch Hazel in Chicken Cholera, and it saved nearly all. I gave 20 drops at first and about 15 to 20 drops 3 times a day until the fourth day, when they would generally eat grain whole. I also tried it on a fowl having Vertigo or Dizziness, and it cured the difficulty, etc., etc."

STABLES OF T. BURHAUS,
115 W. 50TH STREET, N. Y.

"I have used Liebig Co.'s Arnicated Extract of Witch Hazel very extensively among horses, and I have found it an invaluable remedy to have about. I have cured quarter crack, splint, rheumatism, sprains, &c., &c., with it. Several old standing cases of quarter crack, which had existed a great length of time and had been pronounced incurable, were speedily cured by it....The number and variety of horse ailments which it will relieve and cure, makes it not only the best, but also the cheapest veterinary liniment to live stock owners. T. BURHAUS.

Equally emphatic testimony from General Withers, Hon. K. P. Battle, Pres't University of North Carolina, Major Thos. W. Doswell, and hundreds of Farmers, Stock Raisers, Physicians, Surgeons, and Veterinarians.

A WORD

to the public as to our preparations.

1 We never use clap-trap in pushing our goods.

2 We guarantee in quality and honesty in preparation.

3 We sell honest preparations at honest prices. Buyers who look for cheapness regardless of intrinsic merit, need not come to us.

LIEBIG COMPANY'S
ARNICATED EXTRACT
OF
WITCH HAZEL

is a compound of genuine full strength Arnica and pure Witch Hazel. It will cure many of the commoner ailments of Horses, Cattle, Sheep, Swine, Dogs, Mules, Poultry.

It will cure Human Beings of Piles, Salt Rheum, Ulcers, Rheumatism, Diarrhœa, Dysentery, Varicose Veins, Burns and Scalds, Catarrh, Neuralgia, &c., &c.

Full and detailed information may be obtained from our circulars, to be had by addressing the

LIEBIG CO., 38 Murray Street, N. Y. City.



BOWKER'S
Hill and Drill Phosphate with Potash.

A general Fertilizer for all crops, and low in price. Send for Pamphlet.

BOWKER FERTILIZER CO., Boston and New York.

TICKS ON SHEEP SCAB
LICE ON CATTLE MANGE
☞Sure Remedy. Very Cheap.☜

THE COLD WATER DIP!

(*Tar Elixir Sheep Dip.*)

NESS & CO., Prop'rs and Manuf'rs, DARLINGTON, ENG.
This Dip has been manufactured **since 1873,** and used successfully in England during the whole of that period, and is now introduced into the U. S. for the first time.
Increased quautity and improved quality of the WOOL, making it bright and silky, pays the whole cost of the Dip. **One trial** of this Dip **will prove** its excellence. For its various uses in detail and prices, send postage stamp to
T. W. LAWFORD,
Gen'l Agent for the U. S. A., B. N. America and Mexico.
296 E. Chase St., Baltimore, Md.

University of the State of New York.

American Veterinary College.

141 West 54th St. NEW YORK CITY.
The only institution in the State having the power to grant the degree of Doctor of Veterinary Surgery (D.V.S.).
The annual session of this Institution begins in October of each year. Catalogues and announcements can be had from the Dean of the Faculty. **A. LIAUTARD, M.D.V.S.,**
Dean of the Faculty.

THE PERFECT
HATCHER and BROODER.

Is the **Leading and Standard Apparatus of the World for Hatching and Raising Poultry.** It is simple and easy to manage, Absolutely reliable, Perfectly self-regulating, and never fails to hatch.
PERFECT HATCHER CO.
Elmira, New York.
Be sure and mention this paper.

Cotswold Sheep.

A rare chance to buy good sheep at low prices. Catalogue free. **Every sheep in the flock offered for sale.** Readers of the *American Agriculturist* are respectfully asked to send for the catalogue, and favor me with an order.
Address, **JOSEPH HARRIS,**
Moreton Farm. Rochester, N. Y.

THE BEST CATTLE FASTENING!
SMITH'S SELF-ADJUSTING SWING STANCHION!

THE only Practical Swing Stanchion Invented. Thousands in use. Illustrated circular free. Address,
BROOKS & PARSONS, Addison, Steuben Co., N. Y.

ESSEX PIGS.

The largest herd of pure-bred Essex Pigs in the world. Good pigs at low prices. I want to reduce the size of the herd. Send for Catalogue, and **see special offer to the boys.** Address,
JOSEPH HARRIS,
Moreton Farm. Rochester, N. Y.

Remedies
FOR
Horse Diseases

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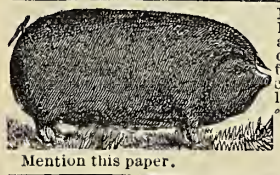


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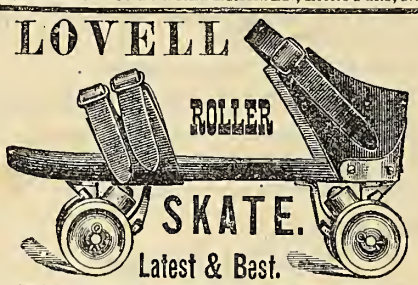
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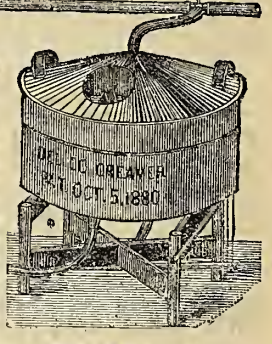
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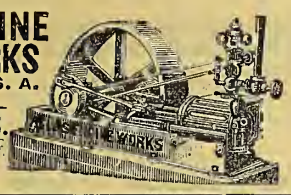
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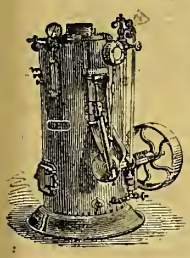
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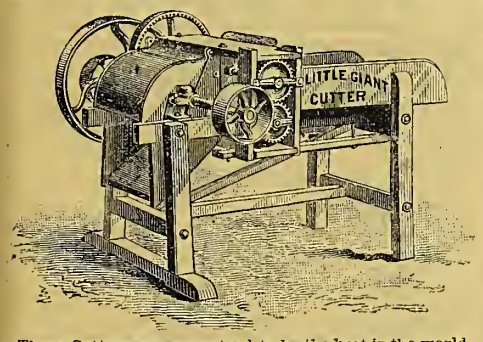
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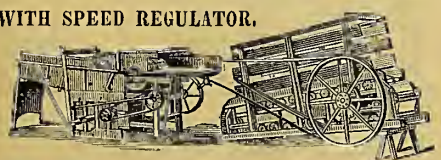
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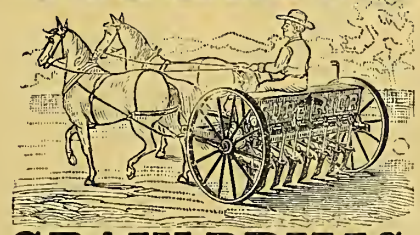
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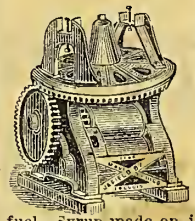
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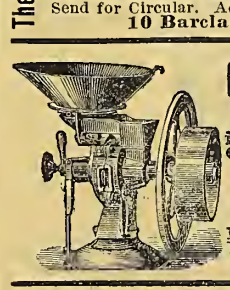
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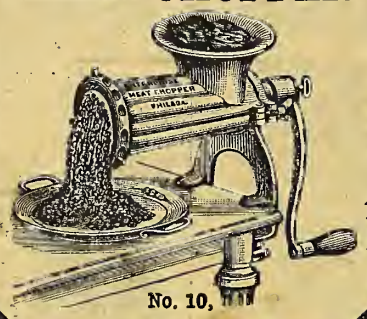
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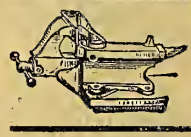
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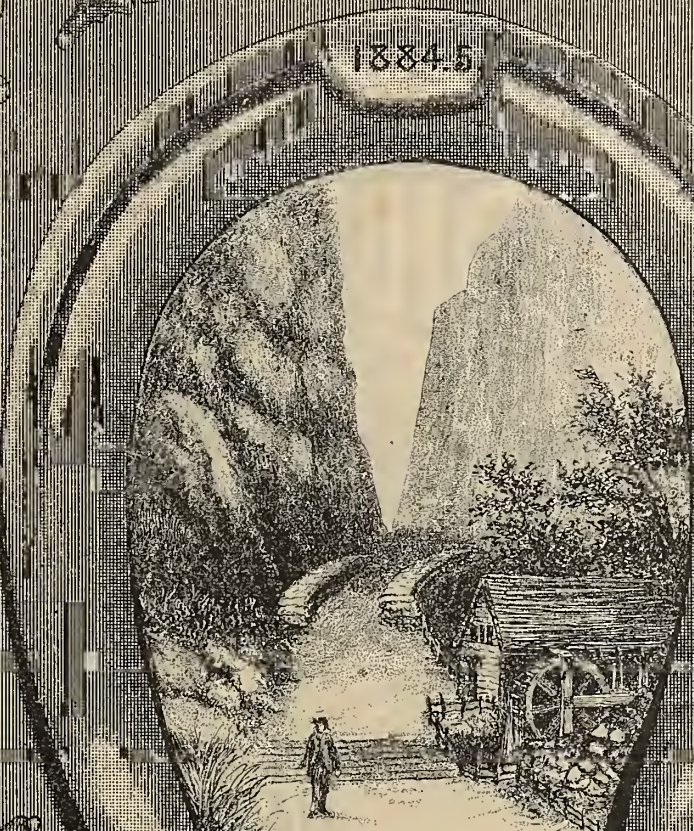
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ESTABLISHED 1842

AMERICAN AGRICULTURIST



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American Agriculturist.

VOLUME XLIII.—No. 10. SUPPLEMENT TO OCTOBER, 1884. NEW SERIES—No. 453.

A WONDERFUL HISTORY.

Very few Americans who have passed the age of forty years can truthfully say with Canning's Knife-Grinder "Story, bless you, I've none to tell sir!" Still less can a journal, nearing its semi-centennial year, be without a history. Like a young forest tree, the journal has in early life its "struggle for existence," and its passing two-score years may be ascribed to "the survival of the fittest."

Like that of a tree, the history of a live journal is one of growth and development, each year accumulating strength, which enables it to bear increased annual crops of useful fruitage, with which to refresh and encourage its vast multitudes of readers.

The first number of the *American Agriculturist* was issued in April, 1842, close to where the New York Post Office now stands, with A. B. Allen and R. L. Allen, Editors, and George A. Peters, Publisher. A copy of this first number, now before us, presents a marked contrast to the issue for October, 1884. The paper then comprised thirty-two pages, which were seven and seven-eighth inches long, by five and one-eighth inches wide, and of two columns each. A page of the first number contained nine hundred and thirty words; the pages now average two thousand three hundred and seventy-six words. The first item in the first number, states that it had been intended to issue it at the beginning of the year, but "unavoidable circumstances have prevented either of the editors from coming to the city." An address "To Our Readers," indicates the proposed course of the paper. To this "address" is appended a resolution passed by the "Board of Agriculture of the American Institute," commending Mr. A. B. Allen and his proposed journal in fitting terms.



Solon Robinson wrote for the first number from Iowa, on Western Prairies, Ezra Carpenter of Ohio, on Raspberries; Lewis F. Allen, a brother of the editors, had an article on Grass Lands; C. N. Bement describes the Shorthorn bull "Washington" (also known as "Champion"), one of the first of the breed imported. T. C. Peters (of Georgia) wrote from London, Eng., on "English Farming Stock." At that time the now important State of Wisconsin was a Territory. Geo. Reed, Cor. Secretary of the "Territorial Agricultural Society," writes about the organization, and asks questions about swine. A venerable lady of eighty discusses "The True Interests of our Country," there are several shorter articles, and Mr. A. B. Allen commences his "Agricultural Tour in England," which was continued throughout the first volume. In the first number there are two illustrations; the Shorthorn bull, which is mentioned above and a Sub-soil plow.

When we turn to the advertisements, now so important a feature for both publishers and readers, we find there are but four, two of which only were from parties not connected with the paper. Of those who wrote for the first number, the Messrs. A. B. Allen, L. F. Allen, and T. C. Peters, remain occasional contributors to these pages.

The paper continued to be published in the form of the first number for the first ten volumes, under different publishers. The Messrs. Allen afterwards established their own printing office, and the *American Agriculturist* was published from their

building in Water Street. The pages were then enlarged considerably in size, and for two or three years the journal was issued weekly, but the monthly form was afterwards resumed and it is still maintained as the most desirable of all forms. The steady increase in circulation shows that the subscribers have preferred the *American Agriculturist* as a monthly. The volume for 1853 was announced to be "under the joint editorial supervision of A. B. Allen and Orange Judd." The office removed in 1860 to Park Row, then to Broadway.

Early in the year 1861 Mr. M. C. Weld was called from Hartford, Conn., to take editorial charge. He subsequently entered the army; soon after Dr. George Thurber commenced his editorial labors with this journal. In 1863, Mr. Weld returned as Colonel Weld, and resumed his editorial relations.

From the beginning of the volume for 1856, up to, and including the number for August, 1864, each issue of the paper bore upon its heading, "Orange Judd, A. M., Editor and Proprietor." The number for September, 1864, had this changed to "Orange Judd, A. M., Publisher and Proprietor." This was the official announcement that he surrendered editorial labors to others—labors which were never afterwards, to any extent, resumed. From that time (twenty years ago), until the present, Dr. George Thurber, assisted by Joseph Harris, Col. M. C. Weld, Andrew S. Fuller, and Dr. Byron D. Halsted, and others, has had editorial charge of the *American Agriculturist*. Eight years ago the present owners were called to take control of the Company publishing the *American Agriculturist*.

"Cheapest and Best."

The above is what thousands of our subscribers say for the *American Agriculturist*. Notwithstanding that the size of this journal has more than doubled, that all the matter is original, and that the engravings are vastly improved and increased, —in number four-fold—the price is to continue $1.50 per year, single numbers 15 cents.

1842.—Then and Now.—1885.

The outline of the principal features of the first number of the *American Agriculturist* already given, will enable recent subscribers to compare the outset of its career with the journal as it is at present. Though time rapidly diminishes their numbers, there are still many who, beginning with the first volume, have made the journey of the past forty-two years in our company. These have followed the career of this journal and have watched its steady growth from small beginnings, until it attained a position of popularity and usefulness unequalled in the history of agricultural journalism.

Constantly Onward and Upward.

The course of the *American Agriculturist* has been one of continuous improvement. Onward and upward has been the aim, and in pursuance of this course, all have striven to make each volume —indeed, each number, excel the previous one. As the journal has prospered, its subscribers have shared its success, as they are given more and better reading matter, illustrated by a greater number of more finely executed engravings, no expense being spared by the Publishers that would secure improvement in our Editorial or Mechanical departments.

For the Entire Family.

The leading object of the *American Agriculturist* is of course to aid the cultivator of the soil to improve his methods, and increase the returns from his labors in any of the many different departments into which agriculture is divided. The farmer's wife is usually his housekeeper, and the prosperity of the farm largely depends upon the management of the household. Knowing the many cares and the continuous labors of the farmer's wife, the *American Agriculturist* does all in its power to diminish the one and lighten the other, and to make brighter and happier the many thousand households in which it is a welcome visitor. The boys and girls are soon to become—at least we hope they are—farmers and farmer's wives. In providing reading for the young folks, we are careful that it shall be instructive and relate to rural matters, with a view to attract them to the farm, to make them see its many interesting features, and to prefer a rural life to any other. In short, while it is a paper for farmers, we wish it to make farmers also.

For the Germans.

Our German farmers and gardeners yearly increase in number, and they specially need the best of instructions as to the new conditions of climate, soil, crops, etc., with which they, as immigrants, are surrounded. The German edition of the *American Agriculturist* is of great service to all such new comers, and others, who read only the German language. The *Amerikanischer Agriculturist*, now in its twenty-seventh year, embodies all the most important articles and engravings of the English edition, with additional matter prepared to meet the wants of its German readers. We have thousands of subscribers in various German speaking countries, who take this journal to prepare themselves for a rural life in the United States.

The *Amerikanischer Agriculturist* is a most appropriate present for an employer to give a German workman, or for a German here to send a friend at home. It is supplied at the same low rate as the English edition, that is, $1.50 a year, post-paid.

East, West, North, and South.

The *American Agriculturist* has contributors in most of the States and Territories, and is designed for all sections of our vast country. Though published in the Metropolis, where the facilities for making a first-class illustrated journal are most complete, it pays special attention to the needs of the farmers of the Far West and other remote portions.

OUR EDITORIAL STAFF AND CONTRIBUTORS for 1885.

The same Editors who have been conducting the AMERICAN AGRICULTURIST *for many years past, are still giving valuable thought and labor to its columns. Among the regular and special contributors are the following able authorities and writers:*

Prof. C. L. INGERSOLL, M. S., Colorado Agr. College.
" A. LIAUTARD, M.D., V.S., Am. Veterinary College.
" W. J. BEAL, Ph. D., Michigan Agr. College.
" D. D. SLADE, M. D., V. S., Harvard Univ. Ag. Dpt.
" G. C. CALDWELL, Ph. D., Cornell Univ. Ag. Dpt.
" A. J. COOK, M. S., Michigan Ag. College.
" C. E. BESSEY, Ph. D., Iowa Agricultural College.
" JAMES LAW, D. V. S., Cornell Univ. Ag. Dpt.
" E. M. SHELTON, M. S., Kansas Ag. College.
" J. B. ROBERTS, M. Ag. Cornell Univ. Ag. Dpt,
" F. H STORER, A. M., Harvard Univ. Ag. Dpt.
" S. A. KNAPP, Iowa Agricultural College.
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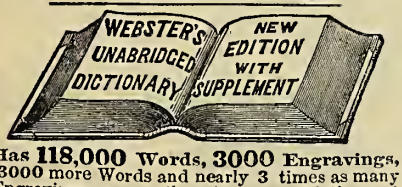
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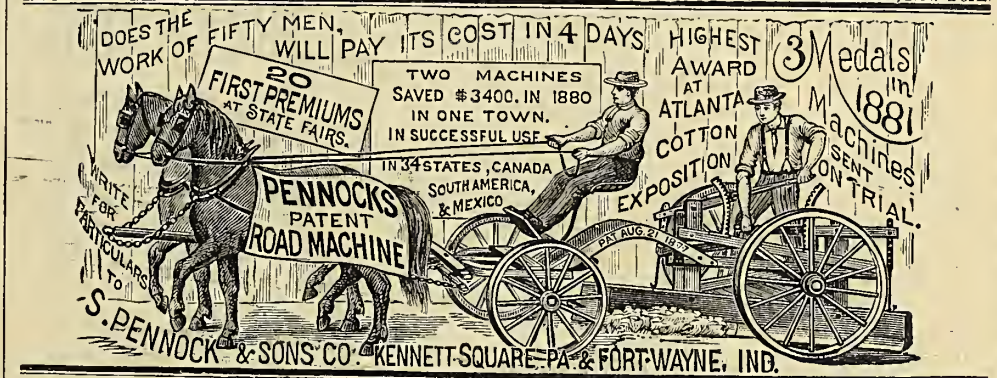
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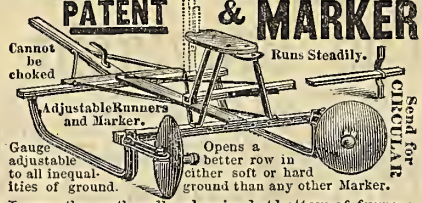
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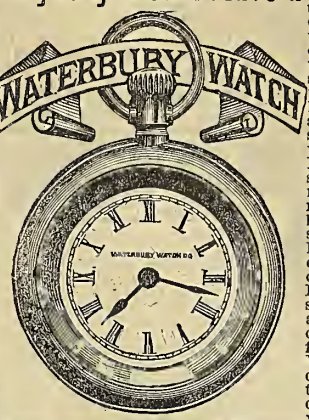
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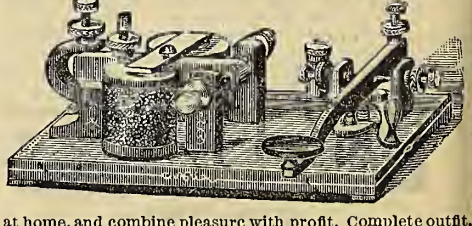
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Strangers in Large Cities.

One whose life has been passed in the country, is at once recognized in the crowded streets of a city. It is not any difference in dress that proclaims him a stranger, but finding himself among new surroundings, every movement shows that he is unused to them. The city dweller passes in the crowd, unconsciously avoiding contact with others, and sees in every direction without appearing to be on the look out. In crossing a crowded thoroughfare, the stranger at once shows that he is unused to the situation. Some one has boastfully said: "it requires more talent to cross Broadway, than to be mayor of some cities." The stranger stands upon the curb-stone of some crowded street, and when he thinks there is an opening, starts across at full speed, usually to come in contact with some vehicle, which turns him back to his starting point. The city dweller in crossing the street, drops into the current of vehicles without hurrying, he goes by the side of one wagon, crosses to another, and without going out of a walk, threads his way across in ease and safety. In all large cities there are gangs of rogues to prey upon strangers. Their usual method is to accost a stranger with, "Ah! Mr. Smith, how do you do? How did you leave all the good people at Greenville?" If the good-natured stranger replies, "my name is not Smith, but Jones, and I am from Brownesville," the rogue apologizes for his mistake, telling him of his resemblance to Smith. This answers the purpose of beginning a conversation, which often results in the stranger being led to some rendezvous, where, on one pretext or another, he is swindled out of the ready money he may have, and is fortunate if he is not induced to sign a check for more.



So frequently has this game been played, that one visiting a city should avoid the advances of all strangers, especially those who claim acquaintance, or assert that they know his relatives or neighbors. If one wishes to make inquiries in the streets, he should never address those that stand at the street corners, or hang about the entrances to hotels. If necessary to ask for information, apply to a policeman if one is within reach, if not, step into some store to make the inquiry. One unused to traveling, often feels quite lonely, and is ready to welcome the advances of strangers. Great caution is needed here, as rogues often travel for the sole purpose of plying their swindling trade. Avoid all confidences with strangers, and especially do not state the object of your visit to a city, or accept of the services of a stranger as a guide to a hotel or boarding place. Be especially careful about showing money; keep a few dollars handy for immediate use, and keep the rest well secured.

Make Ready for the Cholera.

While the health officers can do much to keep out the cholera, and to control it should it gain an entrance, they do not relieve individuals from certain duties to himself and the community. While there is much to be learned about the disease, two points appear to be well ascertained. Filth is favorable to the propagation and development of cholera, and the disease is not contagious in the proper sense of that term, but is communicated by the matters discharged by the patient. No one can predict in what part of the country the epidemic may first make its appearance, and it becomes the duty of every citizen to act as a Health Officer, and put his own premises in proper sanitary condition. Cities often have quarters and streets in such a foul condition as fits them to be hot beds of disease and breeders of pestilence. Villages and farms ought not to be open to a similar charge, but in many cases they are. A handsome house often has at the rear a sink drain ending nowhere, or a vault that is dangerous to the neighborhood. It is well for each one to set his premises in order to receive the cholera. Let every sink drain be made to carry all wastes far away from the house, and let the vault be at once transformed into a dry earth closet. Carbolic acid (crude) and Sulphate of Iron (copperas) are cheap disinfectants, and should be freely used. Cleanliness of person should be observed, and undue exposure and over exertion avoided. The food should be plain and nourishing, and care taken that vegetables are fresh and fruits thoroughly ripe. The condition of the bowels should be watched. An attack of cholera usually begins with a diarrhœa, and every manifestation of this kind should be promptly attended to. One so attacked should at once lie quiet, be well covered, and kept warm, and a physician sent for.

It is only in the first stage, that of simple diarrhœa, that domestic treatment can be relied upon, as the conditions that follow require a varied treatment, according to the violence of the attack. A very useful preparation to keep at hand in case of a sudden attack, and to use until medical aid can be had, is *Chlorodyne*, which is made by every competent apothecary. This contains Chloroform and Morphia, with Oil of Peppermint and Capsicum (Cayenne Pepper), and some other stimulants. It is given in doses of twenty drops to a teaspoonful, according to the violence of the attack. At the time of one of the early visitations of cholera to this country, a then prominent physician, Doctor Reese, if we mistake not, published in the "N. Y. Sun" a formula for a mixture to be taken upon the first attack of cholera, or any other disturbance of the bowels. This was copied far and wide as "The Sun Cholera Mixture," and the preparation is to this day kept under this name by the apothecaries of New York City and elsewhere. This consists of:

Tincture of Opium (Laudanum).
" " Camphor (Spirits of Camphor).
" " Rhubarb.
" " Oil of Peppermint (Essence of P.).
" " Capsicum (Cayenne Pepper).

Equal parts of each, mix, and shake before using. Dose for an adult: Half a teaspoonful in water, taken after each movement. This has been found useful for the prompt treatment of diarrhœa, whether it is a precursor of the cholera or not, and will prove a valuable addition to the family medicine chest kept in readiness for emergencies. All discharges from patients with any affection of the bowels should be disinfected with carbolic acid, and buried where there can be no contamination.

Croup, and its Cure.

This disease is with good reason dreaded by most mothers, for comparatively few families of children grow up without its manifestation among them in at least a light form, and no one knows that it will not speedily assume a dangerous stage. "Nellie Burns" writes to the *American Agriculturist:* In providing for winter, the family medicine chest should have due attention. Much serious illness, and sometimes that which would be fatal, may be prevented by having some simple remedy immediately at hand. Especially is this the case with croup, a dangerous disease, with which a child may be suddenly attacked at night—perhaps when a physician cannot be easily procured. This quickly working disease can usually be speedily subdued by immediate application of proper remedies, while by a little delay it may get beyond the reach of human help, or at least be more difficult to cure than if checked at once.

After years of experience with crouping children, I find the following treatment most effective. Always keep a bottle of sweet oil, and either plenty of "hive syrup" or tartar emetic, in powders suited to the age of the child. At the first croupy cough, which is an unmistakable sound, wrap the child in a warm woolen blanket, and hold it with its feet to the fire, to induce perspiration as quickly as possible. Also give at once "hive syrup" or the tartar emetic powder. If the latter, mix it with a little warm water and sugar. Also rub the throat, chest, and soles of the feet with sweet oil, and saturate a piece of flannel with the oil, heat it as hot as can be borne, and wrap it around the neck. The child will have little relief until it vomits, when it will fall into a restless sleep. Keep it in a warm room during the night, occasionally reheating the flannel on the neck.

Croup rarely spends itself in one night, but is apt to return a second and third night, often growing more severe with each return. So it is highly important to have the child well protected and kept in a warm atmosphere during the day.

Mix together a cupful of molasses, a quarter of a cupful of butter, and sufficient cayenne pepper to give it a sharp taste. Let the mixture boil several minutes. Give the child a teaspoonful every hour until it is relieved.

The dry method of inducing perspiration in croup is safer than to immerse the child in water, as there is danger of taking fresh cold while undressed, and in being removed from the bath; and further, a suffering child will not submit to being placed in water without crying, which will produce choking and coughing, much to its discomfort.

[A mother who has had much successful experience in treating croup among her own children and others, tells us she keeps syrup of ipecac, sweet oil, paregoric, and camphorated oil (or volatile liniment) in the house. At the first croupy sound the child is wrapped very warmly, and its feet heated in mustard water as warm as it can be borne. At the same time she begins giving syrup of ipecac in small doses, from fifteen to thirty drops, according to the age, repeating it every half hour until free vomiting is secured. The neck and chest are bathed in camphorated oil, and kept warm with cotton batting or several layers of soft flannel. After vomiting, and sleep if it occurs, a teaspoonful of a cough mixture (less to an infant) is given every three or four hours, until all croupy symptoms disappear. This cough mixture, which is excellent for any cough, is simply a mixture of equal parts of sweet oil, paregoric, and syrup of ipecac, and should be kept on hand.—ED.]

Salads are Good.

We advocate the use of salads because they are good. They introduce a pleasant variety in the food. In warm weather they are more acceptable than heavy meats, and may be made sufficiently *piquante* to aid the sluggish digestion, while at all other seasons they are welcome by their freshness and flavor. But the oil! there is a very common aversion to oil, especially among those who have not been accustomed to its use. It is often asserted, that a good salad cannot be made unless olive oil is freely used in dressing it. If people do not like oil, or think they do not, let them make their salad without it. Only the very best oil should be used, and that is expensive. Just as good a salad dressing can be made by substituting cream or butter for oil, according to the kind of salad. The butter should be of the best kind, and not heavily salted; in any recipe for salad-dressing, substitute melted butter in the same quantity as directed for oil. The butter should be melted very gently, and only sufficiently heated to liquify it. If, in mixing the other ingredients with the butter, that solidifies too soon, set the dish in a pan of warm water, until the mixture is complete and the dressing assumes a rich creamy consistence, and is perfectly smooth. In making a salad-dressing, considerable variety may be introduced in the flavoring. The main ingredients are oil (or some substitute), vinegar and flavoring; besides these, the yolks of hard-boiled eggs, rubbed up fine, are added to give substance and smoothness to the mixture. The following will give a good dressing: The yolk of a hard-boiled egg is broken up in a dish with a wooden spoon, adding salt and pepper, and a little cream to moisten the egg; when this is reduced to a smooth paste, add gradually two tablespoonfuls of cream, or melted butter, one teaspoonful of vinegar, and about half a teaspoonful of made mustard. The ingredients should be added slowly, and stirred thoroughly. This dressing will answer for many vegetable salads, as well as those consisting in part of meat or fish. It can, of course, be varied in its seasoning according to the taste of the maker.



VEGETABLES SUITABLE FOR SALADS.—Among the vegetables that can only be used in warm weather, unless they are forced under glass, are: lettuce, water-cresses, radishes, endive, dandelion, (both of these blanched), chives, cucumbers, and tomatoes. Winter vegetables to be used raw are celery, cabbages, and onions. The vegetables which must first be cooked tender are beets, cauliflower, asparagus, potatoes, string or snap beans, and celeriac or turnip-rooted celery. Two or more vegetables may be mixed if desired. For vegetables to use as the basis of meat and fish salads, celery and cabbage are best when lettuce is out of season. For flavoring vegetables, chives, onions or shallots, tarragon and parsley are the principal. Parsley may be had fresh all winter, by setting some roots before the ground freezes in a box of soil, which is to be kept in the sunny kitchen window.

POTATO SALAD.—A potato salad, a favorite with many, is made by slicing cold boiled potatoes very thin, sprinkling finely cut chives (or onion), and parsley among the slices, using salt and pepper, and adding oil and vinegar enough to thoroughly moisten the potatoes. Where the oil is objected to, it may be omitted, as it is very good without. We have not tried any substitute for oil in potato salad.

By a proper admixture of vegetables, various kinds of meat and fish salads may be compounded. Chicken salad is to the majority known only by name, and looked upon as a dish for those who do not count the cost in furnishing their tables. Not only will chicken, turkey, or other fowl or bird afford the basis for a delicious salad, but the scraps of meat of most kinds, beef, mutton, etc., may be economically used to make a meat salad, which, if once tried, will be quite sure to be repeated, and from materials that too often go to the pigs. The families of farmers are often obliged to live largely upon salted meats, sometimes to the injury of their health. It is well known that vegetables, especially when eaten raw, tend to correct the unfavorable effects of salt meats, and prevent the tendency to a form of scurvy which such a diet often causes. Salads add a welcome variety to the usual winter fare and improve the general health.

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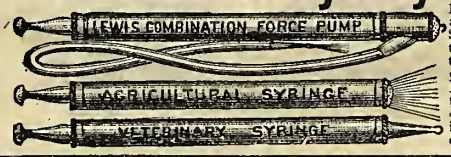
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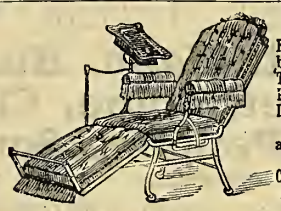
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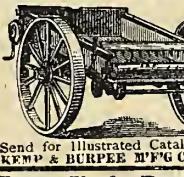
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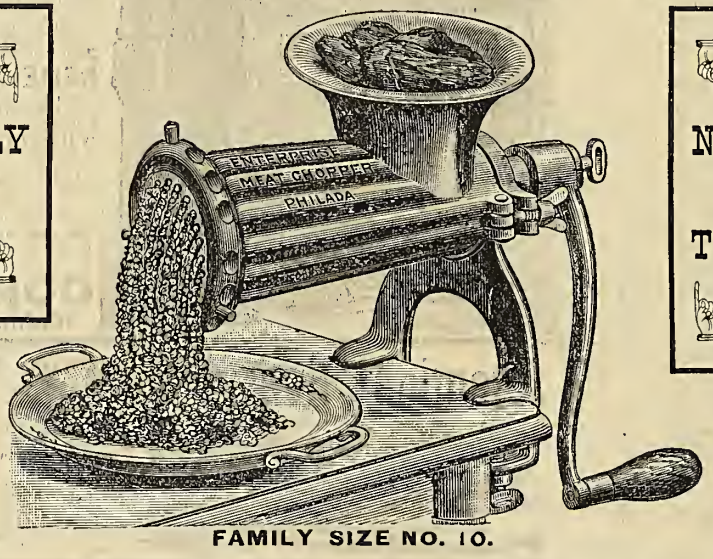
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DIRK 267 DISCOPHORA FRICTION-BALLS 352 FRINGE

Dirk, derk. A dagger formerly much used in the Highlands of Scotland, and still worn as essential to complete the Highland costume.



Dirk.

Dirt-eating, dert'ēt-ing. Cachexia Africana, a disorder of the nutritive functions among negroes, and in certain kinds of disturbance of the feminine health, in which there is an irresistible desire to eat dirt. The practice of some tribes of S. America, of using certain kinds of clay for food.

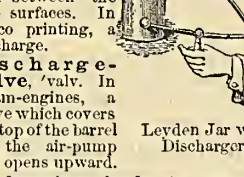
Discharger, dis-chārj'er. In Elect. an instrument for discharging a Leyden jar, &c., by making a connection between the two surfaces. In calico printing, a discharge.



Leyden Jar with Discharger.

Discharge-valve, 'valv. In steam-engines, a valve which covers the top of the barrel of the air-pump and opens upward.

Discharging Arch, 'ing ārch. An arch formed in the substance of a wall to



Discharging Arch.

relieve the part which is below it from the superincumbent weight, commonly used over lintels and flat-headed openings.

Discipline, 'i-plin. Education; instruction; training. Rule of government. Subjection to rule. Correction; punishment inflicted by way of correction and training: instruction by means of misfortune and the like. In the R. C. Ch. bodily punishment inflicted on a delinquent; or that external mortification which a penitent inflicts on himself. The scourge a delinquent uses in self-chastisement; or that wielded by his confessor. Books of discipline, two books drawn up for the reformation of the Scotch Church—the first by Knox and four other ministers in 1560, the second by a committee of Assembly of 1578, in which Andrew Melville took a leading part. This is still appealed to as the most complete and authoritative exhibition of Scottish Presbyterianism.

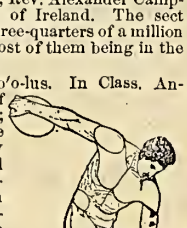
Dischidia, -kid'i-a. A gen. of Asclepiadaceæ, herbs or under shrubs. One species, D. Rafflesiana, is remarkable for its numerous pitcher-like appendages.



Dischidia Rafflesiana.

Disciples of Christ (Campbellites). An independent sect holding views substantially identical with the Baptists, founded in the U. S., 1809, by Rev. Thomas Campbell, a distinguished preacher of the Presbyterian church, from which he seceded, and his son, Rev. Alexander Campbell, both natives of Ireland. The sect numbers nearly three-quarters of a million communicants, most of them being in the S. and W. States.

Discobolus, -kob'o-lus. In Class. Antiq. a thrower of the discus or quoit; a quoit-player. The name given by Cuvier to his 3d family of soft-finned teleostean fishes. The lumpfish (Cyclopterus Lumpus) is a good example of the group.



Discobolus throwing the Discus.

Discophora, -kof'ō-ra. A sub-class of the Hydrozoa, comprising most of the organisms known as sea-jellies, jelly-fishes or sea-nettles. A name sometimes given to the order of annelids, Hirudinea, to which the leech belongs.

Friction-balls, -balz. Balls placed under a heavy object to reduce the friction, while that object is moving horizontally. Some swing-bridges have such balls placed under them.

Friction-clutch, -kluch. A species of loose coupling much used for connecting machines which require to be frequently engaged and disengaged, or which are subject to sudden variations of resistance.

Friction-cones, -kōnz. In Mach. a form of slip-coupling, which allows the cones to slip on any extreme pressure being applied.

Friction-coupling, -kup'ling. A form of coupling in which two shafts are connected by friction, as in the friction-clutch and friction-cones.

Friction-powder, -pou-der. A composition of chlorate of potash and antimony, which readily ignites by friction.

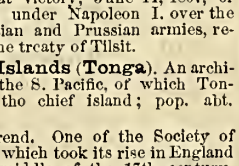
Friday, frī'dā. The 6th day of the week. Good F., the Friday immediately preceding Easter; which is kept sacred, in memory of the sufferings and death of Christ, as it is believed to be the anniversary of the day on which he was crucified.

Friedland, frēd'lahnt. A town of E. Prussia, 86 m. S. E. of Königsberg, noted for the great victory, June 14, 1807, of the French under Napoleon I. over the allied Russian and Prussian armies, resulting in the treaty of Tilsit.

Friendly Islands (Tonga). An archipelago of the S. Pacific, of which Tongataboo is the chief island; pop. abt. 25,000.

Friend, frend. One of the Society of Dissenters, which took its rise in England about the middle of the 17th century, through the preaching of George Fox.

Frieze, frēz. In Arch. that part of the entablature of a column which is between the architrave and cornice. It is a flat member or face, usually sculptured.



Frieze.

A coarse woolen cloth having a shaggy nap on one side, extensively manufactured in Ireland.

Frieze-panel, 'pan-el. One of the upper panels of a door of six panels.

Friga, frig'a. In Scand. Myth. the wife of Odin, a goddess corresponding in some respects to the Aphrodite of the Greeks and Venus of the Romans. Called also Freya.

Frigate, frig'āt. A war vessel larger than a sloop or brig, and less than a ship of the line; usually carrying thirty to sixty guns on the main deck and on a raised quarter-deck and forecastle, or having two decks. Since the introduction of iron-clad war vessels the term has been applied to those having a high speed and great fighting power. Double-banked frigates, such as carried guns on two decks and had a flush upper-deck. Steam frigates, large steamships carrying guns on a flush upper-deck, and having a tier also on the lower deck.



Frigate.

Frigate-bird, -berd. The name given to a gen. of tropical birds (Tachypetes), pelican fam. (Pelecanidæ), and allied to the cormorants; a man-of-war bird.

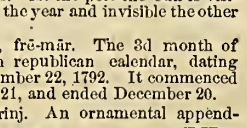


Frigate-bird.

Frigid Zone, frij'id. A space about either pole of the earth, terminated by a parallel of 66½° of latitude, known as the polar circles. At the pole the sun is visible for half the year and invisible the other half.

Frimaire, frē-mār. The 3d month of the French republican calendar, dating from September 22, 1792. It commenced November 21, and ended December 20.

Fringe, frinj. An ornamental appendage to the borders of garments or furniture, consisting of loose threads. The use of fringes is of very great antiquity, as shown by the dresses of figures on the ancient



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Over 1000 Engravings. On account of the size of the pages, the engravings are necessarily small, but they are wonderfully clear, and selected with a view to illustrating the subject rather than to make a show.

When we consider the vast number of topics, the judgment exercised in their selection, the conciseness with which they are treated, and the copiousness with which they are illustrated, **The American Agriculturist Family Cyclopædia** is a remarkable book.

Every one who reads, should, when he meets with a word that is new to him, or one the meaning of which he does not understand, at once look up the word in a dictionary or elsewhere. But the definitions of the dictionary in many cases are found to be meagre, and the meaning must be sought in some more comprehensive work of reference. Comparatively few can afford to possess one of the standard Cyclopædias, in many volumes.

Consequently the publishers of the *American Agriculturist* have been on the lookout for some volume supplementing the Dictionary, some **multum in parvo,** which they might present to all of their readers, old and new. They now have it in this entirely new Cyclopædia, which will be ready for delivery in a few days.

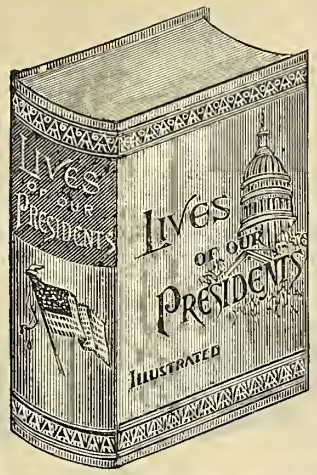
PRESENT EXTRAORDINARY.

To every Subscriber (new or old), to the American Agriculturist for 1885, at $1.50, whose subscription is received before December 1st., we will present this Cyclopædia at our office.

Or we will mail it to any subscriber in the United States or Provinces, on receipt of 15 cents additional for packing and postage, making $1.65 in all.

A Famous Biographical and Historical Work.

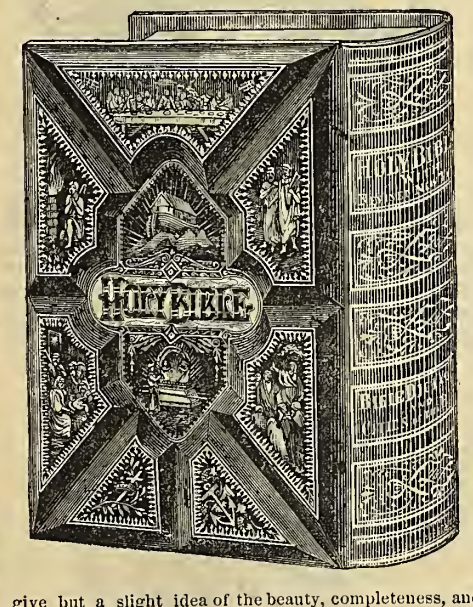
LIVES OF OUR PRESIDENTS!



There is no class of men the events of whose lives are so interesting to American citizens as those who have been elevated to the highest office in the gift of the people. This book contains the life of every man who has occupied the Presidential chair, from George Washington to the present incumbent. The biographies are not brief sketches or outlines, but are full, complete and exhaustive, narrating every prominent event in the life of each President, from the incidents of his boyhood down to his death, or to the present period, together with extracts from his most important speeches and public documents. Incidental to the biographies, we have almost a complete history of our country, from the time of the struggle for Independence to the present day, for no class of men have been more closely identified with our national growth than have our chosen rulers, and each Administration has formed a distinct era in American history. Thus, in the life of Washington we have a full account of the military operations during the Revolutionary War, while in the lives of John Adams and Thomas Jefferson we are made fully acquainted with the diplomatic and legislative details of that great struggle. In the lives of James Madison and Andrew Jackson we find a history of the War of 1812, in that of Harrison the exciting incidents of the Wars with the Indians, while in those of Taylor and Pierce a full history of the Mexican War is given. Coming down to the late struggle for the Union, we find in the life of Abraham Lincoln a complete narrative of the political features of the contest, and in that of General Grant an account of the more important military operations. Thus are history and biography blended in this book, and the result is a work of the most interesting and instructive character. No person who would be familiar with the history of his country and the lives of its chosen rulers (and no American citizen can claim to be well informed without such knowledge), can afford to be without this book, and every father should buy it for the instruction of his children. It is written in such an entertaining manner that young people will read it as readily as a novel, from which no useful information is gained. The lives of George Washington and Abraham Lincoln contained in this volume are alone worth the price of the book. "LIVES OF OUR PRESIDENTS" is a large book of more than 400 pages, square 12mo, handsomely printed from large type upon fine paper, and elegantly bound in cloth, embellished with artistic designs in gold and black. It contains a full page portrait, reproduced from a steel plate, of each of the Presidents, with a fac-simile of his autograph, together with many other beautiful and interesting illustrations, such as the birthplaces and early homes of the Presidents, historical scenes and incidents, public buildings, etc. It is a book which would grace any library or parlor table; it is a book which will be read with both pleasure and profit, and may be handed down in a household from generation to generation, for it is a narrative of facts and not of fiction, and will be just as interesting and instructive to your children's children as it is to yourself. "LIVES OF OUR PRESIDENTS" will be sent by mail, post-paid, to any address upon receipt of price, only **One Dollar.** It is the cheapest book of the kind ever issued, no work of its scope and character ever having been published heretofore for twice that sum.

The above is the description of the publishers. We will send this book (just published), postage prepaid, to any subscriber who will forward us a new subscription at $1.50 for 1885, and 10 cents additional for packing and postage, making $1.60; OR, we will send it, post-paid, for the price to any address.

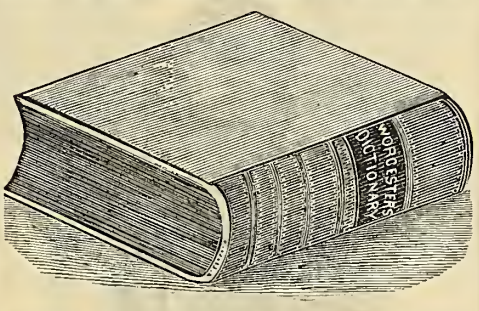
No. A.—Family Bible.—Price $12.00.—This handsome Bible is especially appropriate as a Christmas or Wedding present, and worthy of being preserved as an heir-loom. It comprises the Old and New Testaments, and the Apocrypha; 2,000 Illustrations, including 30 **full-page** steel-line and other fine Engravings, Presentation Plate, beautiful colored Maps, handsome Marriage Certificate, several pages for the Family Record, Jewish and Egyptian Antiquities illustrated, the Lord's Prayer and Ten Commandments illuminated, a Concordance, many valuable Chronological and other tables, and helps to Bible study. The book is bound in best German Morocco, with new raised panels, full gilt sides and back, gilt-edged leaves, and extra heavy nickel plated clasps. It contains 1,700 pages, printed in large, clear type; in fact the description and accompanying engraving



give but a slight idea of the beauty, completeness, and value of the work. We **Present** this Bible for **13** subscribers at $1.50 each; OR, supply it for price.

No. B.—Bible.—Price $10.00.—Another handsome book, smaller than the above, but very elegantly bound in French Morocco, with new raised panels, **full gilt** sides and back, and gilt edges. Contains over 1,400 pages, and has 1,500 engravings, of which 26 are **full page,** by Gustave Doré, and four superb engravings **in colors,** descriptive of the Tabernacle, Jewish Worship, etc.; and illustrated History of the Books of the Bible with tables, Bible History, etc.; and the cities of the Bible beautifully illustrated. Supplied for price; OR, **Presented** for **11** subscriptions at $1.50 each. Receiver to pay freight, which is small, for either of these Bibles.

No. C.—Unabridged Dictionary.—Price $10.00.—Next to the Bible, the most desirable book in every household is the Dictionary, and we offer our friends the opportunity of securing an excellent one.



Worcester's Great Illustrated Quarto (revised edition), will prove a valuable friend to every member of the family, giving the spelling, pronunciation, definition, and full explanation of more than 100,000 words; thus being nearly equal to an Encyclopædia. It contains 1,854 three-column pages, and numberless engravings, is strongly bound in leather, weighs 12 pounds, and is a recognized authority. This book is an actual **Instructor;** and it can be obtained by any one sending us **12** subscriptions at $1.50 each; OR, we will supply it for the price, express unpaid, or by post to any place in the United States or Territories, if 96 cents be sent us to prepay.

No. D.—Abridged Dictionary.—Price $1.00.—Any one who is not yet able to procure the large Dictionary, will do well to get the "Webster's Abridged," which contains 18,000 of the most important and most frequently sought words, with their meanings, and 200 illustrations. This will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied, post-paid, for $1.00.

No. E.—Twelve Good Books in One.—An annual volume of the *American Agriculturist* contains about 1,000 sketches and engravings, relating to almost every phase and detail of rural life, in-doors and out. A complete Index affords quick reference to any subject, and the volume is neatly bound in black cloth, with gilt title, etc. A set of these volumes would form a valuable and comprehensive library, giving reliable advice and information on all Farming, Gardening, and Household matters, the articles being written by the most experienced and practical men and women. Each of these volumes contains, in its *reading* columns alone, as much matter as *twelve* ordinary books sold at $1.50 ($18.00). We preserve the electrotype plates, and print new copies as they are wanted, and will **Present** a bound volume, post-paid, for every **4** renewals at $1.50 each; OR, for **3**



new subscriptions at $1.50 each. Price per bound volume $2.00, or $2.30 if sent by mail.

Microscopes.

We think we may justly claim that the *American Agriculturist* has done more to popularize the use of the Microscope among all classes in this country, than any other agency. Several years since, we caused to be manufactured exclusively for the subscribers of the *American Agriculturist*, by the very first makers in this country, a small microscope which proved to be of great value and popularity. Nearly forty thousand of these Simple Microscopes were asked for by our subscribers, and at one time in the year the call for them was so great, that we were unable to fill the orders. Subsequently, the same makers manufactured for us a valuable Compound Microscope, of which large numbers are being sent to our subscribers all over the world.

Last year we opened negotiations with these makers for some Simple Microscope, which should surpass the previous one, or any other instrument made in either hemisphere. After many months of experiment and trial, these manufacturers brought out the desired instrument fully described on page 456. This is not only superior to anything of the kind ever made, but is furnished at a lower figure than any other genuine microscope. It has none of the mechanism and features of the cheap, spurious microscopes which are now being palmed off at "low figures" on the public.

Suggestions for Securing Subscribers.

Prepare for yourself a list of your friends and neighbors who do not take the *American Agriculturist*, or who, having once taken it, have neglected in past years to renew their subscriptions. Show them copies of the *American Agriculturist* with its wonderful improvements of to-day. Point out to them the great variety and cheapness of the paper, especially directing their attention to the great number of beautiful illustrations. Probably there is not a farmer or householder in the world who has not heard of the *American Agriculturist*.

If you give them opportunity to examine it, you will experience little difficulty in securing your friends and neighbors as subscribers for 1885.

As soon as you commence to work for a premium forward us the names of such people in your neighborhood as are pretty sure to join your club if they can see copies of the paper, and we will immediately forward specimen copies to these names free and post-paid. We have never made this offer before, but have always charged for sample copies except in special cases. Now we make this special offer to every person who begins the work of raising a club. That is to say, we will, in order to help you to secure your premiums, send the specimen numbers as you may direct to such persons as you think may become subscribers.

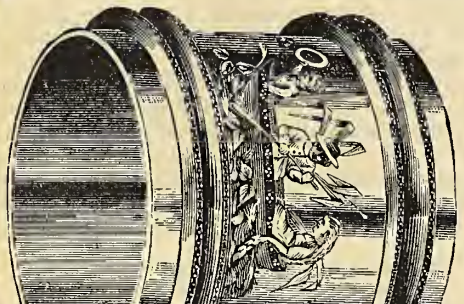
VALUABLE ARTICLES FOR THE HOUSEHOLD.

SILVER-PLATED WARE.

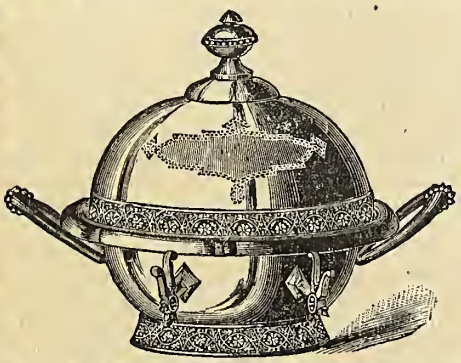
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No. 1.—Cat or Dog Napkin Ring.—Price $1.50.—A novel and amusing design for a Napkin Ring, being the head and limbs of a solemn little Pug-dog, with the ring in place of his body. Prettily chased and ornamented. Another ring has the head and limbs of a demure-faced Cat instead of those of a dog. These rings are especially acceptable to children, and either one of them will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for $1.50. Post-paid in either case.



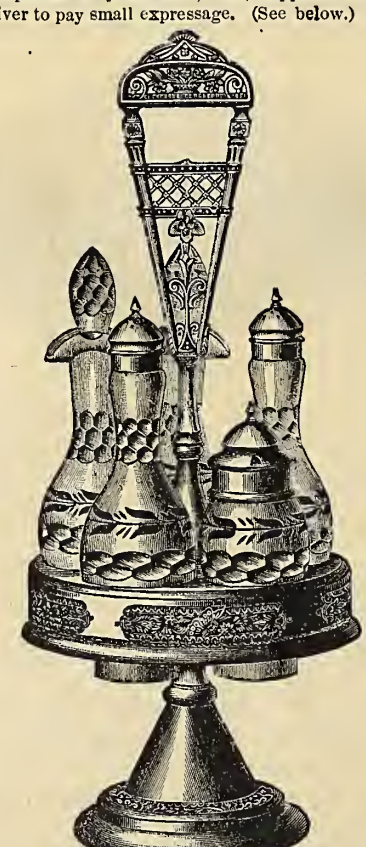
No. 2.—Napkin Ring.—Price 75 cts.—A remarkably fine Ring for the price, being one and three-quarter inches wide, and of the best quadruple plate. The chasing is very elegant, and of a new design, a spirited boating scene. This ring will be **Presented** for **1** subscription at $1.50; OR, supplied for price. Post-paid in either case.



No. 3.—Butter Dish.—Price $5.50.—An excellent article in every respect, prettily chased and ornamented. Provided with a perforated drainer for the melting ice, a dome-shaped cover bearing a shield, on which an initial or monogram can be engraved, and a pair of rests for the butter knife. This last will be found a great convenience in saving the table linen from greasy spots. **Presented** for **6** subscriptions at $1.50 each; OR, supplied for price. Recipient to pay small expressage in either case. (See below.)



No. 4.—Fruit Dish.—Price $9.00.—A very elaborate center-piece for a dinner table, consisting of an ornamental glass dish, supported by a massive stand of best quadruple silver plate. A charming little figure in Kate Greenaway costume, and surrounded by cupids and a wreath of roses, peeps out from beneath the stand. This dish would be a handsome present for a friend. Stands nine inches high, and when filled with large fruit is very imposing and elegant. **Presented** for **10** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay small expressage. (See below.)



No. 5.—Dinner Caster.—Price $7.00.—This handsome Caster will give an air of elegance to the dinner table. It is of best quadruple plate, elaborately chased in flower and butterfly pattern shown in the engraving, and contains five shapely glass bottles, three of them with silver stoppers. It has the "Patent Non-friction Bearing," by means of which it revolves smoothly, producing no jarring of the bottles, nor noise. **Presented** for **7** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay small expressage.

No. 6.—Breakfast Caster.—Price $6.00.—Simple but elegant design. Each of the four cut-glass bottles rests in a silver cup, and is encircled by a wreath-pattern; two of the cruets have silver tops, and two, cut-glass stoppers. This caster is of the best plate, is easily cleaned, and of the most appropriate size for the breakfast table. **Presented** for **6** subscriptions at $1.50 each; OR, supplied for price. Small express charges to be paid by receiver. (See below.)

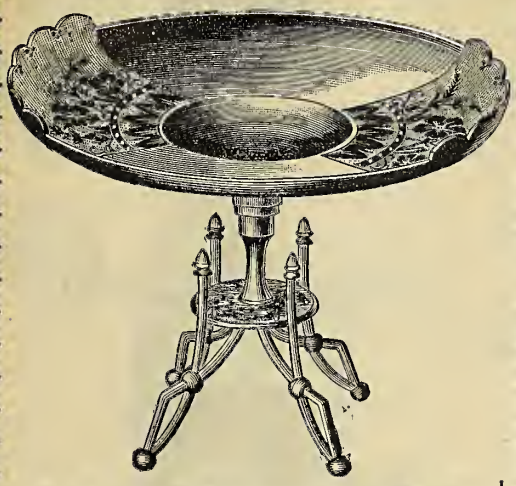




No. 7.—Sugar Basin.—Price $6.00.—This Sugar Basin has the satin finish, which is superior to others in not scratching easily. It is of a substantial looking shape, with a cover and an ornamental shield for the owner's name or monogram. It will be **Presented** for **6** subscriptions at $1.50 each; OR, supplied for the price. Receiver to pay small expressage.



No. 8.—Cream Jug.—Price $5.50.—This Jug is of the same workmanship and design as the preceding sugar basin, and the two together will make a pretty pair, though either one alone will be both ornamental and serviceable on a tea table. The Jug will be **Presented** for **6** subscriptions at $1.50 each; OR, supplied for price. Expressage to be paid by the receiver.



No. 9.—Card Receiver.—Price $7.50.—Best quality of quadruple plate, with the peculiar and exquisite finish in mingled gold and silver, known as Niello work. This Card-receiver is of unique design, as shown in the engraving, with dainty sprays of field flowers worked out on the plate. Very ornamental on a center-table, and can be used for holding visiting cards, photographs, Xmas cards, etc. Its hight is six inches. **Presented** for 8 subscriptions at $1.50 each; OR, supplied for price. Receiver to pay small expressage. (See below.)

No. 10.—Iced Water Pitcher.—Price $12.00.—This magnificent Pitcher is thirteen inches high, double-walled, and very elaborately ornamented; with satin finish, which is particularly durable, and does not show scratches. A space in front is intended to bear a name, monogram, or initial, as preferred. Made of fine, quadruple plate. **Presented** for **12** subscriptions at $1.50 each; OR, supplied for the price. The recipient to pay expressage, which is small, in either case. (See below.)

No. 11.—Cake Basket.—Price $8.00.—This magnificent Basket stands fourteen inches high, and bears the stamp "quadruple-plate." The interior decoration is exceedingly elaborate, and the finish of the handle particularly graceful, as will be seen in the engraving. The shape of the whole basket is the most popular one in the New York market. **Presented** for **9** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay expense of carriage in either case. *



Table-Spoons, Tea-Spoons, and Forks.

These goods are both substantial and elegant, being ornamented with artistic designs, and manufactured of thoroughly reliable material. They are plated with full weight of *pure silver* on the finest spring-tempered nickel silver—the "A 1 Standard Plate" of the Wilcox Silver Plate Company, whose stamp is on the back of each article. The decoration of the Handle is a delicate flower-spray, with designs of elegant and fashionable style. The forks are medium size, which will be found the most convenient, answering every ordinary purpose.

No. 12.—One Dozen Table-spoons.—(Design and quality given above), will be **Presented** for **10** subscriptions at $1.50 each; OR, furnished for $9.50, post-paid in either case.

No. 13.—One Dozen Tea-spoons.—Price $4.75.—Of the same quality and design as preceding, will be **Presented,** post-paid, for **5** subscriptions at $1.50 each; OR, supplied for the price, post-paid.

No. 14.—One Dozen Forks.—Price $9.50.—To match the spoons, and of medium size, will be **Presented** for **10** subscriptions at $1.50 each; OR, supplied for the price, post-paid.

No. 15.—A Dozen Plated Knives.—Price $5.50.—Guaranteed to be triple plated on steel, and thoroughly reliable; with the fashionable pointed "Windsor" handles. They can be used for either meat or dessert, as they are of medium size, and requiring to be only washed after use, are much less trouble to keep clean than steel knives, besides being very ornamental on the table. They will be **Presented** for **6** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

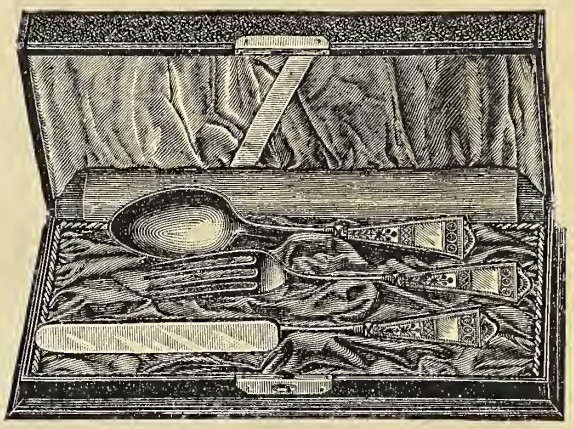
No. 16.—Ice Cream Spoon.—Price $3.50.—This is of the finest quality silver plate, and the engraving shows the elegant and elaborate designs on both the bowl and handle of the spoon. It can be used in serving ice cream, pie, jelly, and many other dishes, and is very ornamental on a table. This handsome article will be **Presented** for **4** new subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.



No. 17.—Sugar Shell.—Price 75 cents.—A pretty and inexpensive little spoon for sugar, with the bowl fluted in imitation of a scallop-shell, and the slender handle decorated in Eastlake design with ferns. Of good quality silver plate. **Presented** for **1** subscription at $1.50; OR, supplied for price, and sent post-paid in either case.

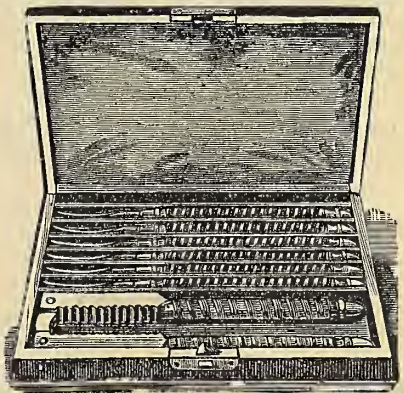
No. 18.—Silver and Gilt Drinking Cup.—Price $3.00.—It is of "Niello" finish, with gilt lining, and prettily decorated with tiny "Marguerites," or field-daisies. The handle is a twisted serpent of delicate workmanship, and on the front of the cup is an open space, where the owner's name is to be engraved among the daisies. This beautiful cup will be **Presented,** post-paid, for **4** subscriptions at $1.50 each; OR, sent, post free, for the price.

No. 19.—Child's Set.—Price $3.50.—A Knife, Fork, and Spoon, of rather small size, and made of the best quality silver plate. They are prettily decorated, and fitted firmly into a strong case of black morocco, with rose-colored satin lining, and brass finish. A very complete set, and suitable for a christening or birthday present. We will send the whole set in case for **4** new subscriptions at $1.50 each; OR, supply it for price. Post-paid in either case.





No. 20.—Pickle Caster.—Price $4.25.—An ornamented cut-glass jar, on a stand nearly twelve inches high, made of best quadruple plate, on hard, white metal. The cover of the jar is also silver-plated, and has a raised flower pattern on each side; a pair of tongs, which terminate in two shapely hands, hang from the sides of the stand. A most complete and elegant looking caster for pickles, olives, etc. It will be **Presented** for **5** subscriptions at $1.50 each; OR, supplied for the price. Small Expressage to be paid by the receiver. (See below.)



No. 21.—Nickel-Plated Nut Picks and Cracker.—Price $2.25.—A strong, handsome case, containing half a dozen nut-picks and a nut-cracker, made entirely of steel, heavily nickel-plated, and handsomely chased. Sent post-paid for **3** subscriptions at $1.50 each; OR, supplied for the price.

The American Agriculturist Simple Microscope, devised and manufactured expressly for us, can be obtained only through us.

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Fig. 1.—Microscope Closed.

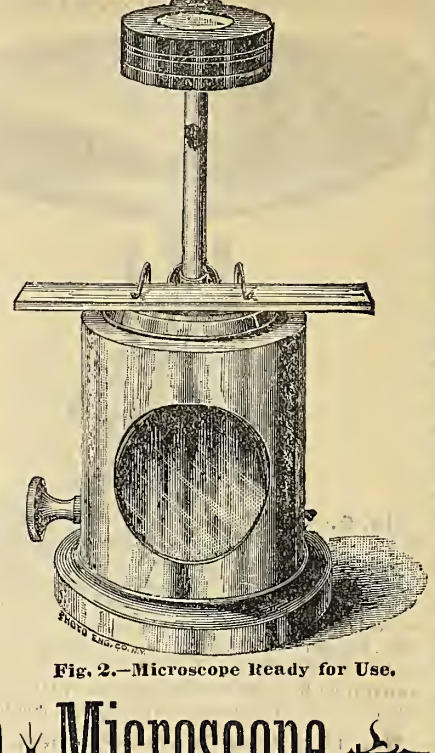


Fig. 2.—Microscope Ready for Use.

American Agriculturist New Simple Microscope,

Pronounced by experts, by the highest scientific authorities in such matters, to be the most complete, most perfect, most useful, and the cheapest instrument of the kind ever devised in this or any other country.

Dr. GEORGE R. CUTTER, Translator and Editor of Prof. Heinrich Frey's great work on the "Microscope and Microscopical Technology" and "Compendium of Histology," Author of the Dictionary of German Medical Terms, Surgeon to the N. Y. Eye and Ear Infirmary, etc., etc., and one of the recognized living authorities on the Microscope, writes us as follows:

52 Bedford Ave., Brooklyn, N. Y., August 19, 1884.

"I am very much pleased with your NEW AMERICAN AGRICULTURIST MICROSCOPE. I find the lenses very clear and well centred. On combining the three lenses with the diaphragm, I get a clear, well-defined, highly magnified image. The stand, mirror, stage, and arrangement for adjusting the lenses are capital; and both the defining and resolving powers of the combination ARE VERY GREAT. I have used this Microscope for dissecting and preparing specimens, and find it equal to some imported ones costing from from fifty to seventy-five francs (that is, from $10 to $15 in Paris). For examining certain specimens, and for many purposes, it is SUPERIOR to MANY COMPOUND MICROSCOPES COSTING SEVERAL TIMES THAT SUM. I think the excellence of the instrument, the surprisingly low price at which it is sold, and the very judicious directions for its use which accompany the instrument, are destined to largely add to the microscopical talent of the country, by increasing the number of amateur microscopists." **Respectfully, GEORGE R. CUTTER, M.D.**

By means of the telescope we discover unknown worlds; but there is an invisible world around us, full of objects hidden from our eyes by their minuteness, which, by the aid of a microscope, we can discover and study with great pleasure and profit to ourselves. There are animal forms so infinitesimal that millions of them move, feed, and multiply, and apparently enjoy themselves in a space as small as a five cent piece.

Not only are there minute forms of animal life, but there are innumerable plants so small that no one is aware of their existence until it is revealed by the Microscope. These Little Things are not only interesting, but to *see* and know them is of

Great Importance to Us.

The greatest harm to our Crops, our Animals, our Fruits, our Flowers, even to our bodies, is found to be due to *living* things, both vegetable and animal, so small that they have until recently escaped our knowledge.

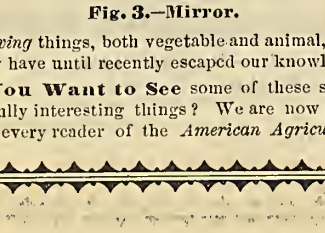


Fig. 3.—Mirror.

Do You Want to See some of these small but wonderfully interesting things? We are now prepared to help every reader of the *American Agriculturist* to some conception of them, to help look a little way down into this unseen world.

The American Agriculturist Compound Microscope, planned, devised, and made expressly for the readers of this paper by the renowned Bausch & Lomb Optical Co., enables you to examine, and to see very distinctly and clearly, a vast multitude of interesting things, each one a thousand times smaller than the tiniest thing that you can see with the unassisted eyes. This instrument, as you will learn from the description, is accessible to all our readers, either without cost, or at a cost far below anything like it was ever before offered—at a cost so small that if you knew how valuable it is, you would spare no effort to get it immediately.



Fig. 4.—Spring Clips.

Not a **Family,** not a **Teacher,** not a **School,** should be without one. Every *farmer* in the land should have one. It would be of more interest to all, and to most people more useful, than anything else they could buy for many times the cost.

By special arrangement to have them manufactured on a large scale, with automatic machinery, (which not only secures entire *uniformity* in quality and a perfection far beyond former methods, but reduces the cost to a small fraction of the former hand manufacture), these most useful instruments are now brought within the easy reach of every man, woman, and child.

DESCRIPTION.—The *American Agriculturist* **NEW Simple Microscope** is shown in fig. 1, ready for packing in its box, while fig. 2 shows the lenses raised and ready for use. The stand or body is of nickel-plated metal (resembling silver and untarnishable). It stands upon a broad bottom. An opening on one side admits light within to a

Circular Mirror, fig. 3; this concentrates and throws the light up to the object examined. This Mirror is so suspended that it can be turned to any angle required by the incoming light from a window, or from a lamp at night. This *Mirror* is of great importance, and is one of the very decided improvements upon the former Simple Microscope supplied seven years ago to our readers. By its aid the needed extra illumination of the object to be examined is provided. At the top of the stand is a **Glass Stage** set in a frame like a watch crystal.—Two nickel-plated **Spring Clips,**

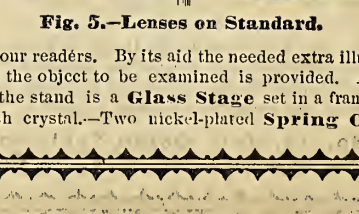


Fig. 5.—Lenses on Standard.

fig. 4, over this stage, hold firmly upon it the slides that carry the objects to be examined.—The Microscope is also accompanied by **two Glass Plates** or slides, and also, to be placed between them, a waterproof **Cell** for holding seeds, insects, and other small objects and fluids. **The Lenses,** figs. 5 and 6, are of course the most important thing in any microscope. In this instrument there are **THREE** of them, of different powers, and so arranged that one can be used where low power is required; a second one for a little higher power, and a third for a still higher power. Then again any two can be combined for other powers, and all three when the highest power of the instrument is desired. Thus *seven* different powers can be quickly provided, ranging from a magnifying power of seven diameters up to twenty-five or more. (It will be understood that if a lens magnifies twenty diameters, that is twenty times in one direction, it magnifies equally in all directions or twenty times twenty areas, or four hundred times (less what is taken off from the corners, in cutting a circle out of a square).

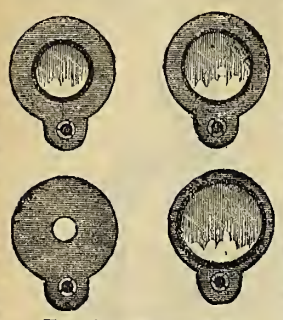


Fig. 6.—LENSES AND DIAPHRAGM, SEPARATE.

A circular area of twenty-five diameters is nearly five hundred times that of one diameter, and this (500) is the magnifying power of these three lenses used together.) They are of highest quality glass, and ground to perfection, of course by automatic machinery so that there can be no variation of curvature. They are as free as possible in an instrument of this kind from the imperfections of ordinary lenses, in fact nearly achromatic, a point not even attempted in the great mass of cheap microscopes sold at moderate prices. — A **Diaphragm** (shown at the lower left-hand of fig. 6, and in fig. 5) is provided to cut off outside light in examining minute objects, and concentrate the vision upon a single point. This turns in or out as needed.—All the Lenses are attached (as in fig. 5) to a Sliding Rod **Standard,** fig. 7, which is moved up and down in a tube by the thumb-piece, making it thus easy to adjust the lenses to any desired distance from the object, in order to find the proper focus, and to suit them to different eyes.



Fig. 7. ROD.

The whole apparatus is packed in a neat and remarkably strong **Box,** adapted to hold it for carrying safely by any conveyance, and for keeping it when not in use.

We can conceive of no more convenient arrangement of all the parts for practical use, than are most effectively combined in this remarkable Simple Microscope.

HOW SUPPLIED.

This Simple Microscope is more valuable in the quality of its lenses, its arrangements, etc., than any thing we have seen offered for several dollars. Probably its equal can nowhere else be had under four or five dollars. But it will be supplied by us and sent *delivered free* to any part of the United States and Territories for two dollars, and *delivered free* to any actual subscriber to the *American Agriculturist* for 1885, for **One Dollar and twenty-five cents.**

FURTHER.—We will present one, delivered free, and send the *American Agriculturist* to a new subscriber, post-paid, during all of 1885, for two dollars.

FURTHER.—We will present this Microscope to any present subscriber, and **deliver it free** to him, who will send us two new subscribers to the *American Agriculturist* for one year, at one dollar and fifty cents each.

Take Notice ALL Subscribers.

Any person already a subscriber to the *American Agriculturist*, can have one of the above Microscopes delivered free to him for one dollar and twenty-five cents.

A Wonderful Microscope.—High Excellence with Low Cost.

A Treasure for every Family, allowing Old and Young to view the wonders that lie unseen all around them, affording an endless source of amusement and instruction, at a cost within the reach of all. —A great boon to the student—a substantial, convenient, useful and powerful working instrument, at no greater price than is charged for useless Toy Microscopes. Schools everywhere can now possess that valuable educational aid, a good Microscope. A great help to Farmers, Physicians, Tradesmen and others, at a heretofore unknown low cost. An equally serviceable instrument formerly cost four times as much!

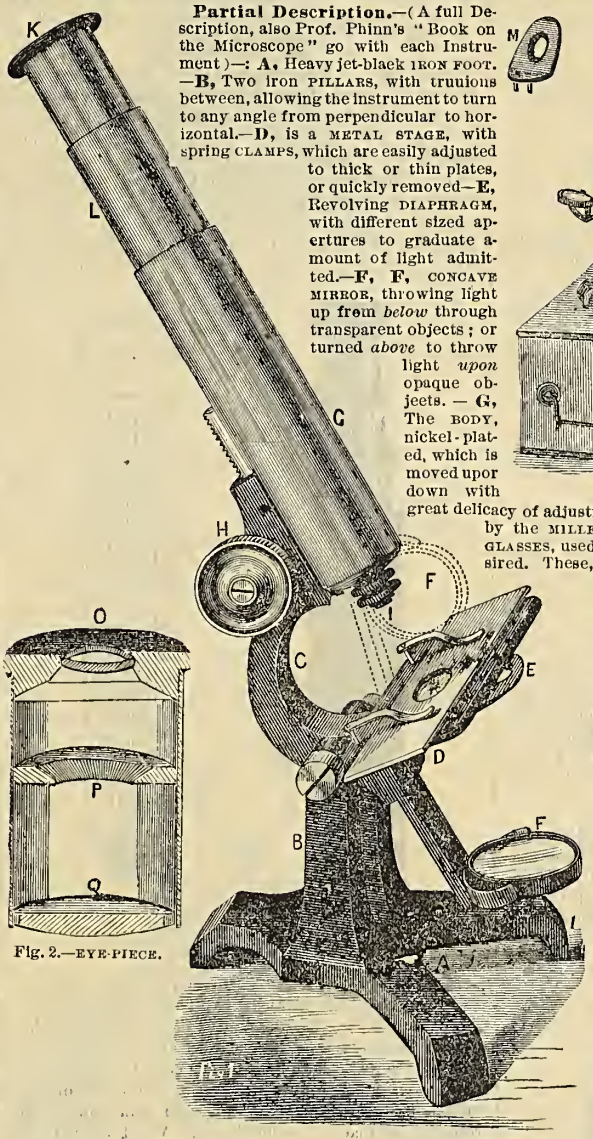


Fig. 2.—EYE-PIECE.

Partial Description.—(A full Description, also Prof. Phinn's "Book on the Microscope" go with each Instrument)—: **A,** Heavy jet-black IRON FOOT. —**B,** Two iron PILLARS, with trunnions between, allowing the instrument to turn to any angle from perpendicular to horizontal.—**D,** is a METAL STAGE, with spring CLAMPS, which are easily adjusted to thick or thin plates, or quickly removed—**E,** Revolving DIAPHRAGM, with different sized apertures to graduate amount of light admitted.—**F, F,** CONCAVE MIRROR, throwing light up from *below* through transparent objects; or turned *above* to throw light *upon* opaque objects. — **G,** The BODY, nickel-plated, which is moved upon down with great delicacy of adjustment of focus, by the RACK and PINION, moved by the MILLED HEADS (one seen at **H**).—**I,** TWO OBJECT GLASSES, used separately or together, according to power desired. These, the most important part of any Microscope, are of very superior quality.—**L,** is a nickel-plated DRAW-TUBE, 3¼ inches long, adding materially to the length of the body when higher magnifying power is desired.—**K** (shown in section at the left, in fig. 2), is a very complete EYE-PIECE, having all the parts of the most costly Microscope, viz., FIELD glass, **Q**; DIAPHRAGM of black metal, **P**; EYE-GLASS, **O.**—All parts of the eye-piece are mounted in frames with removable screws. — Fig. 3. — The **Camera Lucida** is a new and most valuable appliance for throwing the image of any object, magnified to any desired size, upon paper in a way to be easily sketched with a pencil by any person, or by a child, if old enough to trace lines and marks with a pencil.—☞ *With this, one can make a complete picture, 3 or 4 inches across, of the foot of a fly, the parts of a plant, and of many other things so small as to be almost invisible to the unaided eye.*

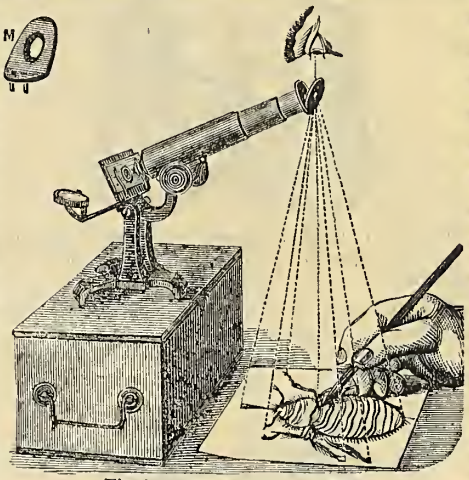


Fig. 3.—CAMERA LUCIDA IN USE.

The structure of plants and insects may be studied, and the invisible beauty of multitudes of objects may afford amusement and instruction to young and old. But the Microscope, besides revealing hidden wonders, and affording interesting occupation in the home circle, plays an important part in practical matters. The fibres of cotton, linen, and silk each presents a characteristic appearance under the Microscope, which allows them to be readily distinguished, and any fraudulent substitution of one for another in a fabric, may be at once detected. Diseased meats, especially pork containing trichines, are dangerous to health and life; their character may be at once ascertained by the Microscope. The adulterations now so common in various articles of food and medicine, are instantly revealed by the Microscope. Among other uses is the valuable aid it gives to physicians in determining the character of diseases, and the presence of their germs.

Price $15 (or $10 to *American Agriculturist* subscribers, for whom it was specially designed).—☞ This price includes the *Camera Lucida*, the Walnut Case (fig. 4) packed in an exterior box, so that it will go safely anywhere by express; also a free copy of Prof. Phinn's Book on the Microscope, some glasses, etc.—Carriage paid by recipients.

The whole will also be **Presented** to any one furnishing **10** subscriptions to the *American Agriculturist* at $1.50 a year each. ☞ The Teachers or Pupils in *every* school not already supplied should at once make up a subscription club, and secure this Microscope for the benefit of all. Plenty of people would take the paper for their own use, when by so doing they would help so valuable an enterprise.

N. B.—*Any one desiring the above Microscope for immediate use, or as a present, can forward* $10 *and receive it, and deduct the* $10 *from the subscription money if he afterwards makes up a Premium Club for it, as above offered.*

The New American Agriculturist

COMPOUND MICROSCOPE.

This instrument is not only made expressly for the subscribers to the *American Agriculturist*, but was in part invented for them by the Optical Company who made the Simple Microscope. The many different parts are all made by accurate machinery, and are interchangeable. The lenses, or glasses, the most important part of the instrument, instead of the former difficult and uncertain hand work, are now ground and shaped by automatic machinery, which secures perfection and precision. It is no mere scientific toy, but is designed for work. It is provided with a *Camera Lucida*, a wonderfully simple and effective device to enable one to draw what is seen. The manner of using the Camera Lucida is illustrated above in figure 3. By the aid of this Microscope a vast number of objects invisible to the unaided eye, may be seen and examined.

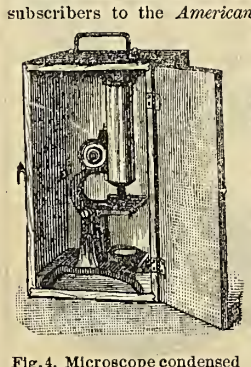
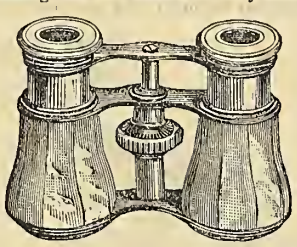


Fig. 4. Microscope condensed in Walnut Case (8½x4½x3¾ inches), in which it is firmly held for carrying or keeping.

☞ NO SUBSCRIPTION CAN COUNT TOWARDS MORE THAN ONE PREMIUM IN ANY CASE.

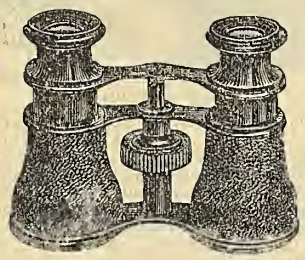
OPTICAL INSTRUMENTS, ETC.

Nos. 22 and 23.—Opera Glasses.—Useful in all large assemblies, concerts, etc., as they afford a close view of speakers, singers, or the audience, also for making out the details of lofty buildings and



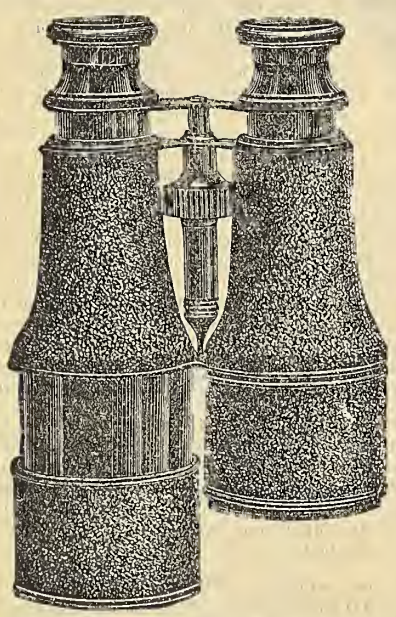
paintings in galleries. Opera Glasses are in fact short range telescopes, to be used by both eyes at once. We offer two:

No. 22, is a beautiful glass for a lady, made of either white or Oriental pearl—**Presented,** post-paid, for **17** subscriptions at $1.50 each; OR, supplied, post-paid, for $16.00.



No. 23, is covered in black morocco, with japanned tops, branches and slides. It has a seventeen-line object-lens, and fits into a good leather case. Of excellent manufacture, and desirable for either a gentleman or a lady. We **Present** this glass, post-paid, for **7** subscriptions at $1.50 each; OR, supply it, post-paid, for $6.00.

No. 24.—Field or Marine Glass.—Price $16.00.—A large and very powerful pair of glasses, manufactured by one of the best makers, covered in morocco, and with black japanned sides. It is provided with movable sun-shades, one of which is shown extended in the engraving, and fits into a neat case with



shoulder-strap. Many persons prefer this glass to a telescope, as it allows the use of both eyes, and it will be found convenient either in travelling or for over-seeing men at work in different parts of a field, etc. We will **Present** one of these handsome glasses, post-paid, to any one sending us **17** subscriptions at $1.50 each; OR, supply it for price, post-paid.

No. 25.—Tourist's Telescope.—Price $16.00—This is a very powerful instrument, and will be found a most delightful companion to any one making tours, whether on foot or by boat. It is provided with a sun-shade, and a convenient case with strong leather straps, so that it can be slung across the shoulders, and carried easily, thus being particularly adapted to mountain climbing. We will **Present** the Telescope for **16** subscriptions at $1.50 each; OR, supply it for the price. Sending it pre-paid in either case.

No. 26. "Achromatic" Telescope.—Price $3.75.—This Telescope will give a distinct view of a house 8 or 10 miles distant. It measures 16½ inches when extended, and has a brass body covered with morocco. An "Achromatic" Telescope is one so constructed that the colors are not produced which sometimes mar the view in an ordinary glass. When not in use, this Telescope collapses to a size convenient for carrying. We **Present** it, post-paid, for **5** subscriptions at $1.50 each; OR, supply it for price, post-paid.



No. 26.

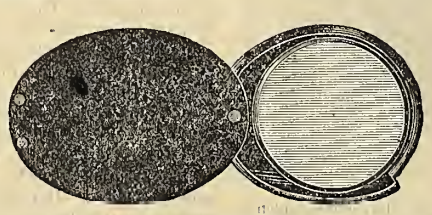


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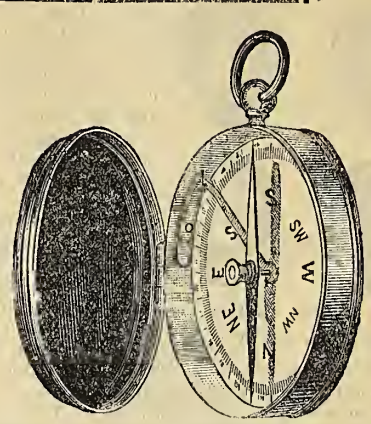
No. 27.—Thermometer.—Price $1.25.—Every one should have at least two Thermometers, so as to be able to compare the temperature of the house with that outside, and now that these articles are sold so cheap, it would be very easy, and always beneficial to have one in each room as a guide in the heating, etc. The one we offer is strong and neat looking, and sufficiently accurate for ordinary household use. We **Present** it, post-paid, for **2** subscriptions at $1.50; OR, supply it for price, post-paid.

Nos. 28 and 29.—Two Useful Glasses.—The Reading Glass, **No. 28,** is very convenient, having a handle, and being a slight magnifier—the lens measures 3¼ inches in diameter, and will be found of great assistance to persons having weak eyesight, or to any one looking at engravings, etc. It will be **Presented** for 2 subscriptions at $1.50 each; OR, supplied for $1.50, post-paid.

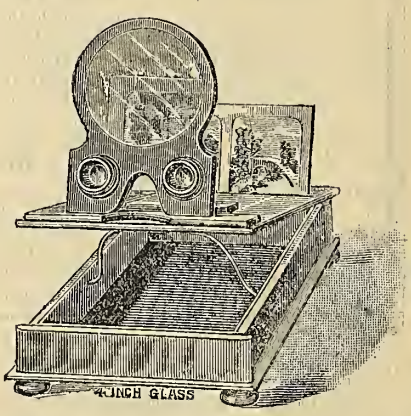




No. 29, is of higher magnifying power than the preceding, and is intended for carrying in the pocket, having a case of hard rubber attached. Convenient for examining insects, flowers, or any small objects, or can be used as a sun-glass. The engraving is less than half the size of glass, the lens measuring 1¾ inches in diameter. **Presented** for **2** subscribers at $1.50 each; OR, supplied for $1.20, post-paid in either case.



No. 30.—Pocket Compass.—Price $2.00.—This Compass is mounted in a strong, brass case, with a secure cover, provided with a "stop," by which the needle can be lifted from the point when not in use. A Compass is always desirable, and particularly satisfactory to a person away from home, as one is often apt to "lose his bearings" when in a strange place. **Presented,** post-paid, for **3** subscriptions at $1.50 each; OR, supplied, post-paid, for price.



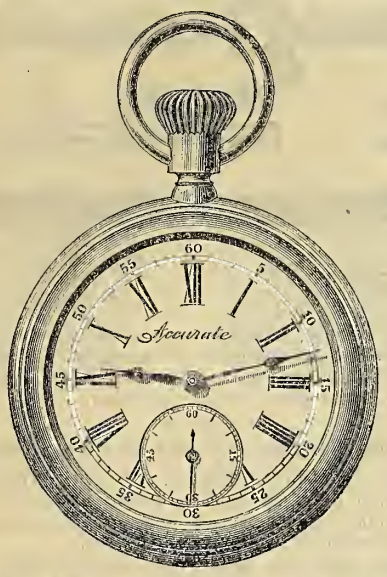
No. 31.—Graphoscope and Stereoscope Combined.—Price $6.00.—This glass is intended to be used in looking at pictures of all kinds, and is a good magnifier. The pleasure derived from the pictures is incalculably increased by use of the Graphoscope, which contains, besides, a pair of glasses for looking at stereoscopic views—diameter of larger glass, four inches. **Presented** for **8** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay expressage.



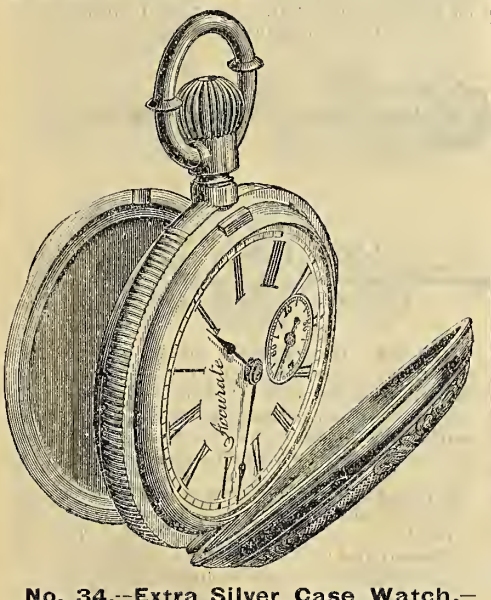
No. 32.—Simple Microscope.—Price 80 cents.—Another magnifying glass, which answers all the purposes of the preceding, and has the advantage of being provided with legs, by which the proper *focus* is determined. A person not accustomed to the use of a magnifying glass, will find this one especially serviceable in examining counterfeit bank-notes, clover, grass, and seeds, etc. **Presented,** post-paid, for **1** new subscriber at $1.50; OR, supplied for price, post-paid.

GOOD WATCHES AND CLOCKS.

No. 33.—A Good Time-Keeper.—Price $10.00.—The very best watch, for the price, that can be found anywhere. It is made expressly for us, and is thoroughly reliable. The case is Nickel, heavily plated on German Silver, and very handsome. It can hardly be



told from silver, and does not tarnish with handling. No key, and no opening required, as the watch is a stem-winder and setter; the glass is a strong, *flat* one, with bevelled edges, and not easily broken. Watch weighs 4¼ ounces, same size as the engraving. Sent, post-paid, to any post-office in the United States or Territories for price; OR, we will **Present** it, carriage prepaid, for **13** subscriptions at $1.50 each.



No. 34.—Extra Silver Case Watch.—Price $15.00.—A splendid watch, with coin silver case, *extra* high grade works, with 13 jewels, compensated balance, etc. Will prove a treasure to its owner; is just as serviceable in every respect, as a $40.00 watch, as has been proved by many persons in our own office. **Presented** for **20** subscriptions at $1.50 each. Carriage prepaid; OR, supplied for price. Popular Premium.

Old Reliability.—Year after year we offer this splendid watch as a premium, because we find it, from actual use in this office, as well as from trial by thousands of our subscribers, to be the best and most reliable Silver Watch for the money ever made in the world. One or the officers of this Company carries no other watch than this, and several of the heads of departments have used them for years. Hence we say "Old Reliability." No.35,

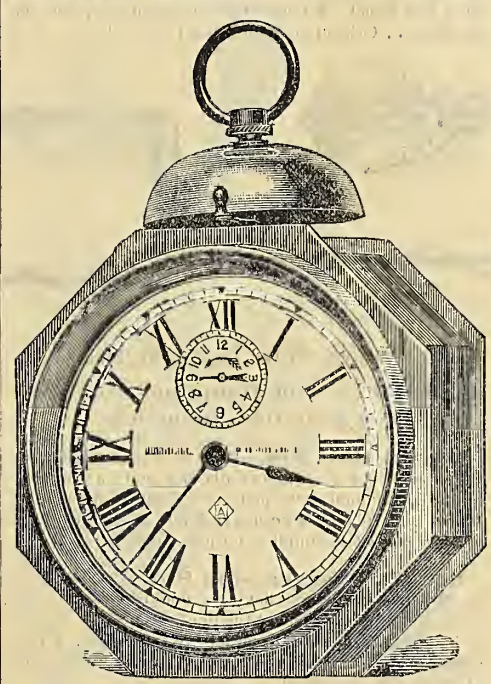
No. 35.—Silver Hunting-Case Watch.—Price $16.00.—Stem-winder and setter, with second hand, and the same in *all* particulars as the preceding, except that it has a strong, handsome hunting case of *coin silver*. We **Present** this beautiful Premium for **22** subscribers at $1.50 each; OR, supply it for the price.



No. 36.—Parlor Clock.—Price $16.00.—A very pretty mantel ornament, and good time-keeper. Made of Marbleized Iron, with a graceful bronze figure on the top, and gilt decorations. It is a striking-clock, and runs eight days. We will **Present** it for **19** subscriptions at $1.50 each; OR, supply it for the price. Receiver to pay freight, which is small. See below.

No. 37.—Nickel-Plated Clock.—Price $5.00.—Very valuable at night, as well as in the daytime. When the little knob at the top is touched the clock *strikes the last hour*. It requires only one winding. One day strike. Entire glass front. Seven inches high. Will be **Presented** to any one who sends us **5** subscriptions at $1.50 each; OR, sent for the price. Expressage small, to be paid by the receiver. See below.

No. 38.—Octagon "Peep O'Day" Clock.—Price $2.70.—One of *the most popular* Premiums. This little clock should be found in every home. It can be carried about in the hand without receiving



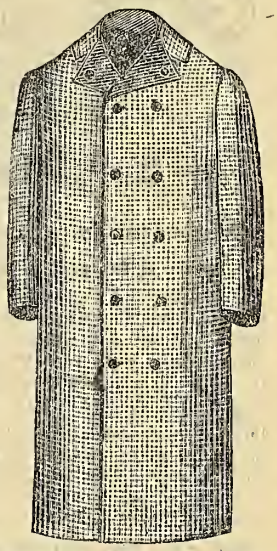
any injury, and has an Alarm. Is wound and set at the back. Nickel-finish, octagon-shape, 1 day strike (repeating). The face measures 4 inches in diameter, and has a second hand, with small dial. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 39.—Drop Octagon Clock.—Price $6.00.—This handsome Clock measures 21½ inches in hight, and is made to hang on the wall. Suitable for the sitting or dining room. Black walnut, with gilt finish, and white dial, measuring 10 inches in diameter. It is a reliable time-keeper, ornamental as well as substantial-looking, and will run for eight days. The upper part of the clock is octagon-shape. It will be **Presented** to any one who sends us **6** subscriptions at $1.50 each; OR, supplied on receipt of the price. The cost of expressage small, to be paid by the receiver in either case.

RUBBER GOODS.

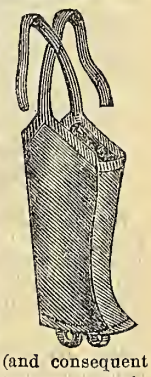
PRESERVE YOUR HEALTH.

No. 40.—Reversible Checked Rubber Coat.—Price $6.00.—The best Protection against wet is a rubber coat, which may be easily slipped on over any quantity of clothing. The one we offer is particularly desirable, being strong, durable, thoroughly waterproof, and at the same time very light—weighing only from 16 to 20 ounces, according to the size. Has a checked lining, and can be worn with either side out. In ordering one, a person's hight, weight, and the size around the body (just below arms) must be given. We will send a rubber coat in a convenient pouch or case, to any Post Office in the United States or Territories, on receipt of price; OR, will **Present** one, post-paid, for **8** subscriptions at $1.50 each.



No. 41.—Rubber Cap, with Cape.—Price $1.50.—This cap keeps off the rain, not only from the head, but also the throat, neck, and shoulders, while the little *roof* in front protects the face, and the opening is just large enough for seeing and breathing. We will send a water-proof cap and cape to any address in the United States by mail, post-paid, for $1.50; OR, **Present** one post-paid for **2** subscriptions at $1.50 each. Size in inches must be sent—hat-dealer's measure, or where hat encircles the head.

No. 42.—Rubber Leggins.—Price $2.00.—These are indispensable to any one who goes out into wet grass, as they are a perfect protection for the legs. They weigh from 5 to 6 ounces, according to the size required. In ordering, state whether large, small, or medium size is wanted. We will send a pair of these leggings, post-paid, for **3** subscriptions at $1.50 each; OR, supply them for the price, post-paid.



No. 43.—Complete Rubber Outfit.—Price $9.00.—The person who obtains this Premium (the above described Cap, Coat, and Leggins), will be the fortunate possessor of a complete water-proof outfit, which will be the means of saving him both time and money; a fit of illness (and consequent doctor's bills) is often brought on by exposure to rain or snow, so that this rubber suit will be found a good investment—the double interest on it being only 2 cents a week. We send the Combination Cap, Coat, and Leggings for **11** subscriptions at $1.50 each; OR, supply them, post-paid, for $9.00.

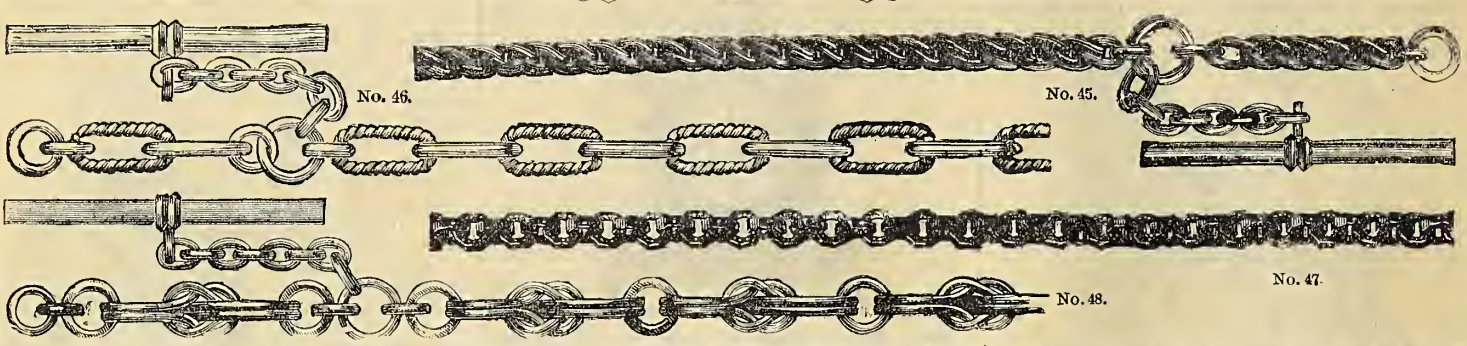
No. 44.—Ladies' Waterproof Circular—Price $4.50.—This is a "feather-weight," and can easily be carried in the pocket, but is strong and durable, and of the best quality. Made by the well-known Goodyear Rubber Company, and fitting into a neat rubber case. Every lady who is likely to go out in bad weather should have one, and she will never have cause to regret the expense. A poor article of this kind is never *cheap*, however low the price may be. Sent post-paid to any part of the United States for $4.50; OR, **Presented** for **6** subscriptions at $1.50 each, post-paid. Send your measure from neck to bottom of walking-dress, or name length desired, from neck down. Circulars vary from 50 to 60 inches in length.



Drop us a Postal Card to Learn the Exact Freight or Expressage to your place, on any Premium.

ELEGANT GOLD-PLATED JEWELRY.

LATEST AND MOST FASHIONABLE DESIGNS.



Gentleman's and Boys Watch Chains.

Fine Quality Rolled Gold Plate.

No. 45.—Price $3.50.—A remarkably solid looking watch chain, of tightly twisted double links. Will wear a long time and always be admired. Has a short chain for charms attached. **Presented** for 4 subscriptions at $1.50 each ; OR, supplied for price, post-paid,

No. 46.—Price $3.50. — A new pattern, square links, alternate plain and spiral. A very good and durable chain for a young man. Provided with bar, spring-loop, etc. **Presented** for 4 subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

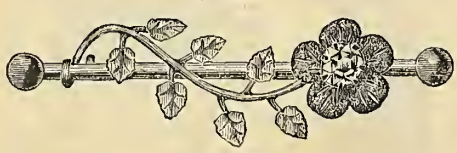
No. 47.—Fire-gilt Chain with Charm.—Price $1.25.—A remarkably good chain for the price. Very pretty design, and having a charm in which the stone is a good imitation of Cameo on one side, and Intaglio on the other, each bearing a female head. A very showy article. **Presented** for 2 subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 48.—Price $3.00.—Is a light, pretty chain for a young man or boy. Loosely twisted links, with short attachment for charms, a spring loop, etc. Very stylish, and genteel looking. **Presented** for 3 subscriptions at $1.50 each ; OR, supplied for price, post-paid, in either case.

No. 49.—Price $3.50.—Heavy chain for a Gentleman's use, prettily chased. A thoroughly reliable and substantial article, and a very handsome present for a friend. **Presented** for 4 subscriptions at $1.50 each ; OR, supplied for price, post-paid.



No. 58.



No. 59.

No. 50.—Price $3.50.—A magnificent cable chain, very heavy and substantial looking. About fourteen inches long, and with the usual attachments. **Presented** for 4 subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 51.—Price $5.00. — Elegant curb chain of unique design ; desirable for either an old or a young man. Same length as above, with attachments. **Presented** for 5 subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

Two Watch Chains for Ladies.

Rolled Gold Plate.

No. 52.—Price $5.00—A beautiful chain for a lady, of particularly chaste pattern, consisting of tiny double links; cube-shaped slides, prettily chased. Nothing could be more elegantly simple for either a young or an old lady, than this chain. It will be **Presented** for 6 subscriptions at $1.50 each: OR, supplied for price, post-paid.

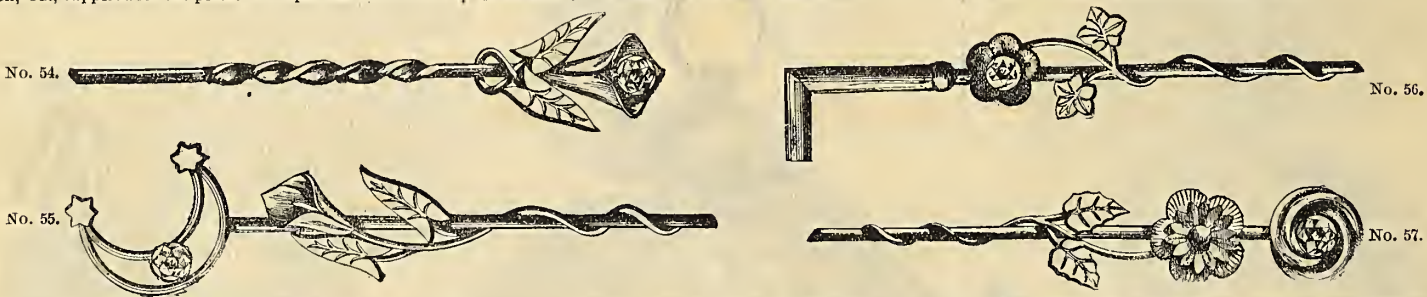
No. 53.—Price $4.00.—An elaborate chain, suitable for a young lady. It is in two shades of gold, and has ball-shaped slides, each of which contains two turquoises and two rubies. Furnished with patent spring rings. A most beautiful and acceptable present for a lady friend. **Presented** for 5 subscriptions at $1.50 each ; OR, supplied for price, post-paid.

Gold Bangles.—Brooch and Ear-Rings.

Best quality rolled gold plate. The styles are the same as those sold in solid gold and it is impossible to distinguish these goods from real. Different sizes can be had, and each pair is packed in a suitable box.

No. 60.—Price $6.00.—A remarkably handsome and massive-looking pair of bangles, in two shades of gold. Heavily ornamented with balls and rings, covered with filigree work. A very elegant present for a lady. **Presented** for 7 subscriptions at $1.50 each ; OR, supplied for the price. Prepaid in either case.

No. 61.—Price $4.50.—A pretty and delicate pattern in *yellow* gold with six turquoises in each bangle. Very appropriate for a young lady. **Presented** for 5 subscriptions at $1.50 each ; OR, furnished for the price. Postage prepaid in either case.



Ladies' Pins—Latest Styles,

With Rolled Gold Mountings, and Perfect Imitation Diamonds.

No. 54.—Lily Pin.—Price $1.50.—For fastening the shawl or fichu. A large Calla Lily, with a very fine imitation diamond in the place of the stamen and pistils. Rolled gold plate. **Presented** for 2 subscriptions at $1.50 each ; OR, supplied for price, post-paid.

No. 55.—Crescent-top Pin.—Price $1.50.—An elaborate Jersey pin, having a double crescent with two stars, and a diamond at the top. Around the stem is coiled a delicate Calla Lily spray with two leaves. **Presented** for 2 subscriptions at $1.50 each ; OR, supplied for price, post-paid.

No. 56.—Daisy Pin.—Price $1.50.—A very unique design of pin. Suitable for wearing at the throat, fastening a scarf, etc. The centre of the daisy is a diamond. This elegant pin will be **Presented** for 2 subscriptions at $1.50 each ; post-paid.

No. 57.—Jersey Pin.—Price $1.50.—This elegant pin is a flower-spray, with a diamond set in a coil of gold above it. It can be had for 2 subscriptions at $1.50 each ; OR, will be supplied, post-paid, for price.

No. 58.—Lace Pin.—Price $1.50.—This little pin is of two shades of gold, prettily marked, the pattern being a double spray of star-vine, with a diamond in the centre flower. **Presented** for 2 subscriptions at $1.50 each ; OR, supplied, post-paid, for price.

No. 59.—Lace or Sash Pin.—Price $1.50.—The pattern seems especially suited to a child, and this pin (as well as the above), can either be used to fasten a sash or ribbon, or worn by a young lady as a brooch. It is of two shades of gold, and has a diamond in the centre of the daisy. **Presented** for 2 subscriptions at $1.50 each ; OR, supplied for price, post-paid.

No. 62.—Price $2.50.—A simple, less elaborate style than the above, but extremely elegant and ladylike. Two shades of gold, ball-ends chased and ornamented. The most suitable pair for a young girl. **Presented** for 3 subscriptions at $1.50 each ; OR, furnished for the price. Prepaid in either case.

No. 63.—Price $4.50.—These bangles have three real garnets on each side of the centre ornament, which is prettily chased and decorated in filigree. They will be **Presented** for 5 subscriptions at $1.50 each ; OR, sent for the price. Prepaid in either case.

No. 64.—Brooch and Ear-Rings.—Price $3.00.—A very graceful and delicate pattern in two



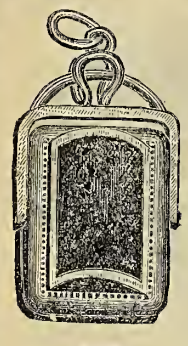
shades of gold. Each of the pieces has a wonderfully good imitation diamond, hanging in a slender ring. The whole set, brooch and ear-rings, will be sent, post-paid, for 4 subscriptions at $1.50 each; OR, furnished for price.

☞ NO SUBSCRIPTION CAN COUNT TOWARDS MORE THAN ONE PREMIUM IN ANY CASE.

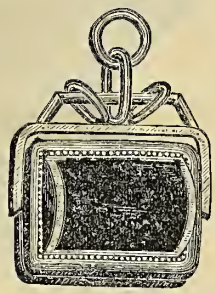
Gentlemen's Lockets.—Watch Charm.

No. 65.—Price $1.75.—Green agate and blood-stone locket. Turns on a pivot, and contains places for two pictures, etc. Very handsome. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

No. 66.—Price $1.75.—Moss agate on one side, and green agate on the other. Similar to above in all other respects. An ornamental addition to a gentleman's watch chain. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

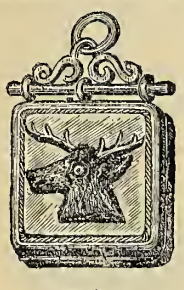


No. 65.



No. 66.

No. 67.—Pearl Front Locket.—Price $2.50.—Very elegant, with a stag's head beautifully chased on a background of pearl. All these lockets are of fine rolled gold plate, and will be found very durable. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.



No. 67.



No. 68.

No. 68.—Gentleman's Watch Charm.—Price 75 cts.—A pretty ornament for the watch chain. Red Agate on the back, and delicately chased design on front—horse's head and horse-shoe. **Presented** for **1** subscription at $1.50; OR, supplied for price. Post-paid in either case.

Gentlemen's Sleeve and Front Buttons.

No. 69.—Gentleman's Sleeve Buttons.—Price 75 cts.—Fine, strong looking buttons, with a large, sparkling gold-stone in each. Patent Acme Lever Back. Very handsome buttons. **Presented,** post-paid, for **1** new subscription at $1.50; OR, supplied for the price, post-paid.



No. 69.



No. 70.

No. 70.—Sleeve Buttons.—Price $1.00.—For either lady's or gentleman's wear. Best rolled gold plate, with patent Acme lever shanks, non-separable. Prettily ornamented with bird pattern. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 71.—Gold Front Buttons.—Price $2.50.—Very chaste design of border, with a diamond star in center—a beautiful imitation. Can be worn by either a lady or a gentleman. Patent Acme Lever Back. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.



16 Carat Hard Solder Gold Rings.

Latest Styles.

No. 72.—8 Pearls and 4 Garnets.—Price $3.50.—A very handsome style; four garnets with four pearls on each side of them. Suitable for either a lady or a gentleman. **Presented** for **4** subscriptions at $1.50 each; OR, sent for the price. Prepaid in either case.

No. 73.—6 Pearls and 3 Garnets.—Price $4.00.—This ring is handsomely chased, and has a large garnet in the centre, with a smaller one on each side, and three pearls above and below. **Presented** for **5** subscriptions at $1.50 each; OR, furnished for the price. Postage prepaid in either case.



No. 72.



No. 73.



No. 74.

No. 74.—Double Ring.—Price $2.50.—This ring has the effect of *two* when on the hand, as is seen in the engraving. It is heavily chased, and contains a garnet and a large pearl. Can be worn by either a lady or a gentleman. **Presented** for **3** subscriptions at $1.50 each; OR, sent for price, post-paid.

No. 75.—5 Pearls and 6 Garnets.—Price $3.00.—An unusual and elegant design; chased in leaf pattern, and containing five pearls in centre row, with three real garnets on each side of them. **Presented** for **4** subscriptions at $1.50 each; OR, sent for the price. Prepaid in either case.

No. 76.—4 Garnets and 4 Pearls.—Price $2.50.—Very light and pretty design; four pearls in centre with two garnets on each side, Chased. **Presented** for **4** subscriptions at $1.50 each; OR, supplied for the price. Postage paid in either case.



No. 75.



No. 76.



No. 77.

No. 77.—Large Garnet and 2 Pearls.—Price $2.00.—A less expensive ring than the five preceding, but very pretty and dainty-looking for a young lady. A large garnet with a pearl on each side. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Prepaid in either case.

No. 78.—Enamel and Pearls.—Price $2.00.—A cross of six pearls set in gold on a bright blue enamel ground. A remarkably pretty ring for a lady or a young man. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.



No. 78.



No. 79.



No. 81.

No. 79.—Diamond Solitaire.—Price $2.00.—A plain, elegant ring, with brilliant imitation diamond beautifully cut. Can be worn by either a lady or a gentleman. **Presented** for **3** subscriptions at $1.50 each; OR, furnished for the price. Post-paid in either case.

No. 80.—Chased Oval.—Price $1.50.—Elegant oval ring with very heavy, handsome chasing. This will be **Presented** for **2** subscriptions at $1.50 each; OR, sent on receipt of the price. Post-paid in either case.

Fine Rolled Gold Rings with Handsome Stones.

For Both Ladies' and Gentlemen's Wear.

No. 81.—Moss Agate.—Price $1.00.—A very elegant and simple style for a gentleman. Montana gray moss agate, with beautiful markings. **Presented** for **1** subscription at $1.50; OR, supplied for price, postage paid.



No. 82.



No. 83.



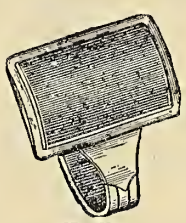
No. 84.

No. 82.—Large Amethyst.—Price $1.00.—Chased ring with large, oblong amethyst—a remarkably good imitation. Can be worn by a lady or a gentleman. **Presented** for **1** subscription at $1.50; OR, sent for the price. Post-paid in either case.

No. 83.—Tree Agate.—Price $1.00.—Very large stone for gentleman's wear. Imitation tree agate, black markings on smoke-color ground. **Presented** for **1** subscription at $1.50; OR, supplied for the price. Postage prepaid in either case.

No. 84.—Oval Amethyst.—Price $1.00.—A heavy oval, rich-colored amethyst, which few persons would suppose to be imitation. Suitable for a gentleman and very showy. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

No. 85.—Red Stone.—Price $1.00.—An elegant large ring, with plain setting and a large red stone. **Presented** for **1** subscription at $1.50; OR, supplied on receipt of price. Prepaid in either case.



No. 85.



No. 86.

No. 86.—Intaglio.—Price $1.00.—A heavy, and very fine-looking ring with imitation intaglio—head of armed warrior deeply cut in a dark red transparent stone. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Prepaid in either case.

No. 87.—Cameo.—Price $1.—A dainty and prettily chased ring for either a lady or a gentleman. Imitation cameo—a helmeted head of pale salmon-color on a changeable pink ground. **Presented** for **1** subscription at $1.50; OR, supplied on receipt of price. Postage paid in either case.



No. 88.—Chased Ring.—Price $1.50.—Flat chased ring of filled gold, with a space where the owner's name can be engraved. **Presented** for **2** subscriptions at $1.50 each; OR, sent on receipt of price. Prepaid in either case.



No. 88.

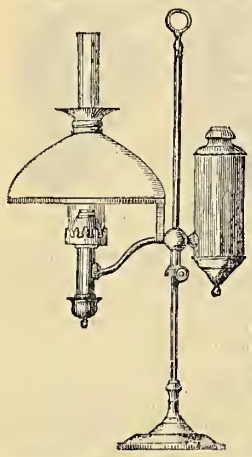


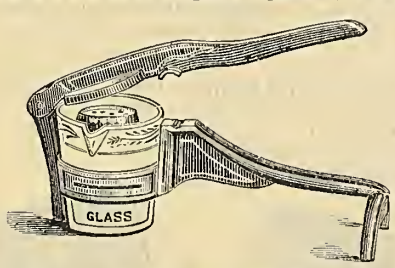
No. 89.

No. 89.—Plain Ring.—Price $1.50.—Very handsome looking plain oval ring of filled gold. It will be **Presented** for **2** subscriptions at $1.50 each; OR, sent on receipt of the price. Postage paid in either case.

FOR FAMILY USE.

No. 90.—Student's Lamp.—Price $5.00 and $6.00.—It has been asserted by good authorities that 90 per cent of all the defective eye-sight is attributable to the use of insufficient or unsteady light. Flickering, however slight it may be, is exceedingly injurious to the eyes. The German Student Lamp is the best, the most economical, and the safest that can be found; the double reservoir (on the *right* of the engraving), lets out the oil according as it is needed, keeping it always at the same level, near the wick, and producing a bright, steady and uniform flame. The Argand burner, with the tall chimney, having a contracted neck, produces a strong draft, which consumes the oil instead of letting it escape as invisible unconsumed carbon as other lamps do. For reading, writing, sewing, etc., the Student's Lamp has no equal and is considered superior to gas, as the centre of a family evening gathering. We can supply the larger size complete, with white glass shade, chimney, etc., for $5.00 in polished brass; or, for $6.00 finely nickel-plated; OR, **Present** the former for **7**, and the latter for **8** subscriptions at $1.50 each. Carriage to be paid by receiver, and 25 cents extra for boxing, if it is to go by freight or express. (See below.



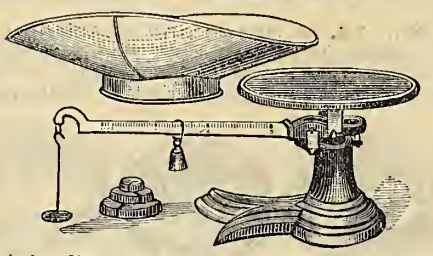


No. 91.—Lemon-Squeezer. — Price 75 cents.—This is a combination of Lemon squeezer, Nut-cracker, and Cork-presser, three very useful articles. The "Dean" patent consists of a half-pint tumbler with a lip, set in an iron frame; the tumbler has a "shoulder" around the inside, upon which rests an inverted hollow truncated cone made of earthenware, and pierced with holes in the top. Half a lemon is placed over these holes, and when the lever is depressed, the juice falls into the glass from which it is poured without danger of spilling. The Cork-presser or Nut-cracker is between the levers on the right of the tumbler. Size No. 2, which has a ten-inch lever, will be **Presented** for **1** new subscription at $1.50; OR, supplied for price. Several of these lemon-squeezers can be sent in one parcel, at little more cost than that of one. The small expressage is to be paid by receiver. (See below.)



No. 92.—Champion Clothes Wringer.—Price $5.00.—All stiff springs, cog wheels, etc., are discarded, the pressure being obtained by pivoted levers. The frame is made of galvanized malleable iron; the rolls of white rubber; the whole is simple and durable, and not likely to get out of order. Given for 5 subscriptions at $1.50 each; OR, supplied for the price. Receiver paying freight. (See below.)

No. 93.—"Little Detective Scale."—Price $3.50, with Platform and Tin Scoop.—This little Scale is made with Steel Bearings and Brass Beam, and weighs accurately any package from ¼ oz. to 25 lbs. It



is nicely adjusted, and an almost indispensable article for the House-keeper. Useful also for weighing mail matter. **4** subscriptions at $1.50 each will secure it; OR, we will supply it at the price. Carriage to be paid by the receiver. (See below.)



No. 94.—Call Bell, and Adhesive Hooks.—Price 50 cts.—A small, strong bell for household or business use, with a sweet, clear tone. Made of iron and steel-plate. Besides this, a box containing 25 patent Adhesive Suspension Hooks, which no family should be without. Though made of thin wire and paper, they will, when fastened to the wall, sustain **several pounds** weight, and are very ornamental, being brightly colored leaves, or pretty views, figures, heads, etc. The back of the paper is covered with strong gum, and is to be moistened, and pressed tightly against the wall or



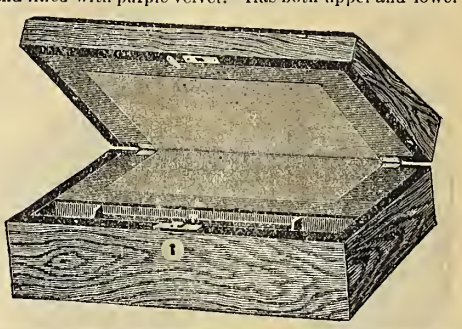
wood-work, and can be washed off if desired. The Bell, and a box of these useful Hooks, with directions for putting up, will be **Presented** for **1** subscription at $1.50; OR, supplied for price. Postage paid in either case.

No. 95.—Autograph Album.—Price $1.50.—An elegant present for a lady friend. This Album is of garnet plush, with raised satin, tea-rose and leaves on one side. Measures 7x4 inches, and contains an illustrated and illuminated title page, gilt-edged leaves, superior quality paper in five delicate tints. This beautiful book will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

No. 96.—Scrap Book.—Price $1.00.—Covered in mouse-colored cloth, with the front gorgeously illuminated in an elaborate raised pattern: birds, butterflies and flowers, in gilt and brilliant colors. Measures 9x13 inches, and contains heavy white leaves with red edges. Very ornamental, and useful for preserving pictures, scraps from newspapers, etc. Will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Prepaid in either case.

No. 97.—Domestic Type Writer.—Price $1.00.—Useful for both household and business purposes, simple in construction, and very easy to use. It will be found serviceable for lettering cards, directing envelopes, writing letters, and for numberless other operations. Instructive and amusing for children, as it will teach them the letters, and how to make words and sentences, and be at the same time an interesting pastime. This little machine is well made, very durable, and is packed in a strong box, with two colors of Ink-powder, and full directions for use. **Presented** for **2** subscriptions at $1.50 each; OR, sent for price, post-paid in either case.

No. 98.—Writing Desk.—Price $3.50.—A handsome desk for a lady or a young man; measures 13x9x5 inches. Real walnut, ornamented in black and gilt, and lined with purple velvet. Has both upper and lower



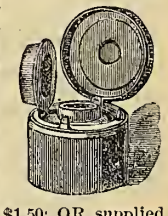
receptacle for note paper, etc., places for pens and ink, and a foot ruler. It will be **Presented** for **4** subscriptions at $1.50 each; OR, furnished for the price. Receiver to pay freight charges in either case. (See below.)

No. 99.—Writing Desk.—Price $4.50.—A pretty little desk of dark, polished wood, decorated. To open it, pull out the drawer in front—a new design. It is lined with purple velveteen. A very convenient, and at the same time ornamental article. **Presented** for **5** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay expressage, which is small.

No. 100.—Small Writing Case.—Price 75 cts.—Covered in black cloth, embossed; with steel finish, and having a lock and key. Lined with white, watered paper, and containing a blotting book, a compartment for paper and envelopes, a pen-holder, ruler, two sticks of superfine sealing wax (red and bronze), a metal case for pens, and a good lead pencil. A very nice portfolio for a boy or girl. **Presented** for **1** subscription at $1.50; OR, supplied for price. Post-paid in either case.

No 101.—Portfolio.—Price $1.25.—Larger size than preceding. Covered in brown cloth, prettily decorated in gilt, furnished with a lock and key. The inside is of figured oiled paper, black and wine-colored, with gilt ornaments—pretty and substantial looking. Contains two compartments, one marked "Correspondence," some envelopes; an eight-inch ruler; pen-holder and pencil case, all of light wood, and a blotting book. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

No. 102.—Ink-Bottle in Case.—Price 50 cts.—Having a patent double cover, with very strong spring, this case is so secure that it can even be carried in the pocket without any danger of the ink's spilling. The inside of the case is entirely of brass, and contains a small glass bottle, which can be taken out to be washed and filled. The outside is covered in bright-red Morocco with brass finish. A most convenient and satisfactory article. **Presented** for **1** subscription at $1.50; OR, supplied for the price. Post-paid in either case.

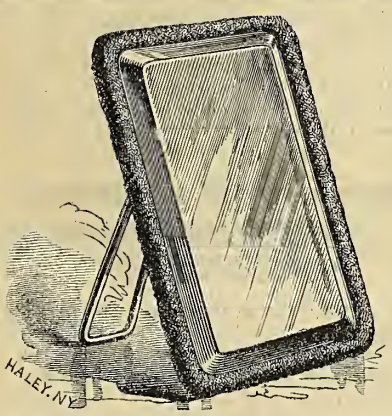


No. 103.—Perambulator.—Price $13.50.—This baby carriage is made of either wicker or slats, and we will furnish which ever is preferred. The inside is entirely covered with all wool reps, and it has a hand-

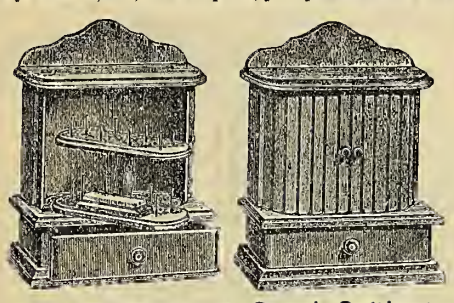


rail, handle tips, hub caps, and curtains. The latter, when not in use, kept in the patent "Valise-top," which is also a convenient receptacle for many small articles. This Perambulator will be **Presented** for **17** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay express charges in either case. (See below.)

No. 104.—Plush Hand-Mirror.—Price $1.25.—An exqnisite plate glass Mirror, with back and frame of wine color silk plush of finest quality. Measnres six by four inches. Its greatest advantage is a strong folding support in steel, by which it can be hung up, stood on the table, or held in the hand. It is especially convenient for gentlemen while shaving, as it can be changed by means of the steel support, and adjusted to any position to suit the face. Ordinary glasses with a support can only be placed in one position. Here, by means of the adjusting support, the mirror is changed to any position. It will make a most beautiful



present for a lady to a gentleman friend. It is equally appropriate and beautiful for a lady's boudoir. One of the staff of the *American Agriculturist* procured a similar one in Europe last year, and was perfectly delighted with this adjusting mirror. It has now been brought ont here; and while we offer it at $1.25, it is sold from $1.50 to $2 in drug stores. We consider this plush mirror as one of the most desirable premiums we offer. They ornament the bureaus of several of the Editors of this paper; and we believe that every present subscriber of the *American Agriculturist* will immediately send for one as soon as the other subscribers in his town may receive one for exhibition. **Presented** for **2** subscriptions at $1.50 each; OR, sent for price, post-paid in either case.



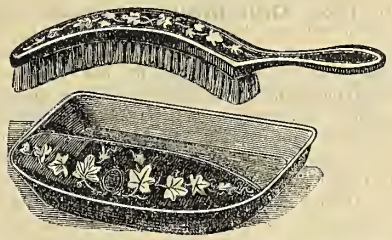
No. 105.—Florence Spool Cabinet.—Price $1.50.—Real walnut, with ebonized trimmings. A useful and pleasing present for a lady. Stands eleven inches high, is 4½ inches deep, and 8 inches wide. Has a convex front with patent sliding doors; the interior is a double tray, containing places for fourteen spools of cotton or silk, and a velvet cushion for needles and pins. This pair of trays revolves on a screw, so as to be brought completely outside of the cabinet, when in use. Underneath is a draw for sewing materials, work, etc. This cabinet is an ornament to any room, especially with a pretty statue standing on top of it, and should be owned by every lady who does the sewing for her family. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 106 No. 107



No. 106 and 107.—Gold Thimbles.—Price, No. 106, 62 cts., No. 107, $2.00.—The "Patent Graduated Filled Gold Thimble," will outlast *two* of pure gold, as the metal is too soft for use without some alloy. One of these two is handsomely engraved, and each is put up in a velvet lined case. The more ornamental one will be **Presented** for **2** subscriptions at $1.50 each; and the other for **1** subscription. Either will be sent, post-paid, for price.

No. 108.—Buttonhole Scissors.—Price 75 cts.—Indispensable to ladies. These little scissors are of superior quality, and have a patent screw-gnage. **Presented** for **1** subscription at $1.50; OR, supplied for the price. Post-paid in either case.

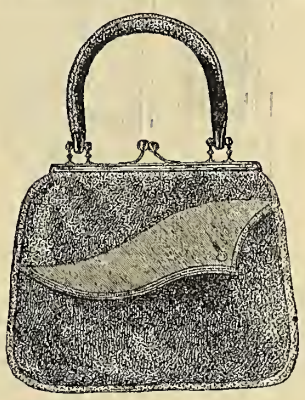


No. 109.—Crumb Brush and Tray.—Price $1.00.—Prettily painted and ornamented in bright-colored wreath pattern. Two premiums in one. Brush and Tray will be sent post-paid for **2** subscriptions at $1.50 each; OR, supplied for the price.

No. 110.—Plush Cologne Set.—Price $1.25.—An elegantly quaint-looking little article, very appropriate as a present to a young lady. Measures five inches in length, and stands four inches high. It is a slipper of garnet silk plush, of finest quality, with a beetle embroidered on the toe, in pea-cock blue and other shades of silk; red satin sole, brass headed nails in heel and handle; the latter also of garnet plush. A perfume bottle fits into the slipper, but can be taken out; it is cut-glass, stands three inches high, including the stopper, and can be used for holding cologne, essence, smelling-salts, etc. This very attractive Premium, which will be ornamental to any parlor or toilet table, will be **Presented** for **2** subscriptions at $1.50 each; OR, sent for the price, post-paid in either case.

No. 111.—Card Case.—Price $1.00.—Made entirely of tortoise shell, and suitable for either a lady or a gentleman. Very stylish, and at the same time substantial; will hold a number of visiting cards, and is of convenient size and shape for slipping into the pocket. Measures 4x2½ inches. Furnished with a metal spring fastening, and finished inside with white ivory. A very pretty present for a friend. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 112.—Plush Satchel.—Price $2.50.—Lady's elegant hand-satchel, of the most fashionable shape, with ontside pocket for handkerchief. Dark color-



ed plush, and kid of fine quality, with steel finish. Has plush handle, neat lining, and inside pocket. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price. Postage paid in either case.

No. 113.—Ladies' Satchel.—Price $2.25.—Made of light tan-color crocodile leather, with steel fin-

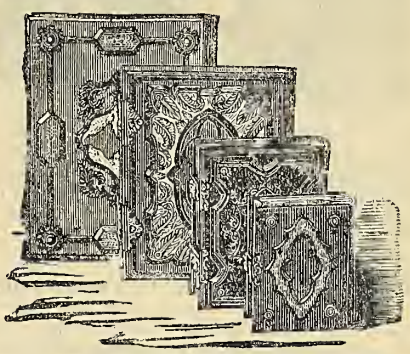


ish and a good clasp. The handle is of leather, and the lining of soft, fine kid in fawn color. Inside pocket. A particularly serviceable and stylish looking bag for a lady. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

Beautiful Albums.

No. 114.—Photograph Album.—Price $2.50.—Strongly bound in fine black Morocco, ornamented with a spray of raised satin flowers, in gilt, silver and colors. Firm brass clasp, gilt-edged leaves, decorated title-page, places for twenty-four large photographs, and twenty-eight small ones, and gilt-finished pages. A very substantial and handsome book. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for the price. Receiver to pay expressage in either case.

No. 115.—Price $3.50.—This handsome Album measures 9½ by 8 inches, and is strongly bound in maroon morocco, embossed, and ornamented with an elaborate raised spray of flowers in colored satin, gilt and silver, and has the word "Album" in gilt on the back. Strong nickeled clasp, and gilt-edged leaves. Contains 34 tinted and gilded pages, having places for 70 photographs of **3** sizes—card, imperial, and panel, and openings of various shapes. Fly-leaves of heavy, white, watered paper, and a beautiful title page—a water-view in delicate æsthetic tints. This handsome and durable book will be **Presented** for **4** subscriptions at $1.50 each; OR, supplied on receipt of the price. Receiver to pay small expressage in either case.



No. 116.—Small Photograph Album.—Price $1.25.—A pretty little Album for holding small photographs. Bound in garnet leather with arabesque and flower designs in black, gilt, and silver. Measures 5x4 inches. Brass clasp, gilt-edged leaves, and places for three dozen pictures. The pages are tinted, and finished in gilt lines, and the binding is strong and durable. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price, post-paid in either case.

No. 117.—Another Small Album.—Price 75 cents.—Bound in light garnet leatherette, prettily decorated with a raised flower-spray in gold and silver. Nickel-plated clasp, white-watered fly leaves, and in all respects similar to the preceding, though much less expensive. **Presented** for **1** subscription at $1.50; OR, sent for the price, post-paid in either case.

Pocket Books for Everybody.

No. 118.—Price $1.25.—Crocodile leather, light-colored, with steel finish. Lined with kid and sateen of same color, and containing six compartments, ivory top lead pencil and two silicate pages for memoranda, which can be washed off. A strong, flexible, and genteel looking book. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

No. 119.—Price $1.00.—A beautiful little purse of unique shape, covered with untanned deer skin in white and fawn color; garnet plush sides and satin cords, tassels, etc. Steel finish, and light kid lining. Suitable for a young lady. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 120.—Price $1.25.—Black crocodile skin, with red plush corners, fine black satin cords and tassels, steel finish, and black kid lining. Contains five compartments, besides an extra secure one for gold, etc. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 121.—Price $1.00.—Gentlemen's Pocket book, of tan-colored, flexible Calf, with strap to match, and worked border. Lining of kid and red Silesia, with satin finish, special compartments for bank notes, etc. A very durable and handsome book. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

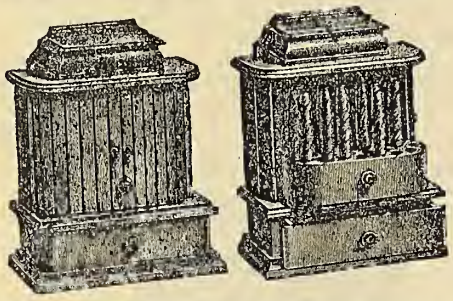
No. 122.—Price 50 cts.—A very genteel little purse, made of softest glove kid; maroon, with tan-kid lining and steel finish. Of a very convenient size for carrying

in the pocket. **Presented** for **1** subscription at $1.50; OR, supplied for price. Postage paid in either case.

No. 123.—Price $1.25.—A handsome pocket book of wine-colored plush and kid, both of good quality. Lined with mouse-colored kid; having six compartments and steel finish. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

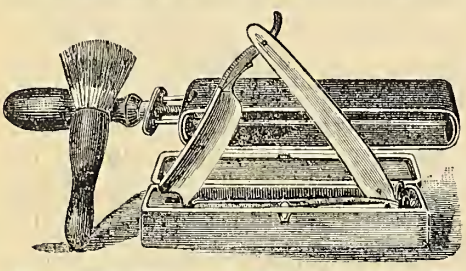
For Gentlemen.

No. 124.—Smoker's Cabinet.—Price $1.50.—Any man that enjoys smoking, will appreciate the comfort of having his cigars, pipes, etc., kept in a neat, secure case, and always to be found in the same place. The Smoker's Cabinet is very ornamental and compact-looking, standing ten inches high, and manufactured of real walnut, with ebonized finish. At the bottom is a



drawer for tobacco and pipes, above that, are places for two dozen cigars on a revolving stand, with patent convex sliding doors. On the top is a receptacle for matches, with hinged cover. This remarkably complete and convenient cabinet will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 125.—Cigar Case.—Price $1.00.—A strong, fine looking case, for carrying cigars in the waist-coat pocket. Made of light-colored crocodile leather, sewed. A very sensible present for a gentleman, as it will last for years. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Postage paid in either case.



No. 126.—Shaving Set.—Price $5.75.—Two fine quality steel razors, with white, ivory handles, manufactured by Wade & Butcher; a Goldschmidt's razor-strop, and a shaving brush. This complete set fits into a leather case, and will be **Presented** for **7** subscriptions at $1.50 each; OR, furnished for price. Post-paid in either case.

No. 127.—Razor.—Price $1.50.—A good black handled razor, fine steel. Same manufacture as above. It will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

Pens and Pencils, etc.

No. 128.—(Price $2.00).—Suitable for either a lady or a gentleman, and can be carried in the pocket. The holder is of fine rolled plate, with a slide, and a *solid gold* pen. We **Present** it for **3** subscriptions at $1.50 each; OR, supply it, post-paid, for price.

No. 129.—Price $1.75.—This premium is especially valuable for persons who require a pocket pen for frequent use. It is a fine black reversible holder, with plated mountings, and a solid gold pen. A thoroughly substantial artiele, and always popular. **Presented** for **3** subscriptions at $1,50 each; OR, supplied, post-paid, for price.

No. 130.—Ever-Pointed Pencil.—Price 50 cts.—A splendid substitute for the ordinary wooden pencil, saving its owner the time and trouble of sharpening. It contains a long lead which is *always pointed*. **Presented** for **1** subscription at $1.50; OR, supplied, post-paid, for price.

No. 131.—Price 50 cts.—A fine rolled gold plate tooth-pick, with solid gold point. A very desirable artiele, and always acceptable as a present. **Presented** for **1** subscription at $1.50; OR, sent, post-paid, for price.



No. 132.—Gold Mounted Pocket Pencil.—Price 60 cts.—This Pencil is an invaluable companion to every man, whatever his calling. It is strong and handsome, a convenient size for the pocket—three and a half inches in length. Is made of hard, black rubber, with elegant gold mountings, and is of excellent, though simple construction. Every pencil is *warranted*, and thousands are sold weekly. The leads do not break easily if proper care is taken, and with a little foresight the pencil can be kept ready for use. To put in a lead, unscrew the point and slip the lead in as far as necessary, holding the pencil upright, then screw the point tight again. The thread inside the tube prevents the biting off of the lead, as in "claw" pointed pencils. The large black leads, or copying leads, are the best to use. **1** new subscription at $1.50 will secure this handsome and useful Premium, post-paid; OR, we will supply it, post-paid, for price.

No. 133.—Fountain Pen-Holder.—Price $4.50.—The famous Johnson Fountain Pen-holder, is absolutely invaluable to any one who writes much, particularly to a doctor, lawyer, etc. Each pen is guaranteed to last for *five years;* the holder can contain ink sufficient for writing 40,000 words *without dipping*, and is the greatest possible saving of time. Made of gutta-percha, and fitted with a substantial looking black case. We **Present** this valuable pen for **5** subscriptions at $1.50 each; OR, send it, post-paid, for price.

No. 134.—Black and Gold Pen Holder.—Price $2.50.—The handle is black, with elegantly chased gold-plate mountings, and a **real gold** pen. Sliding holder for convenience in carrying. Suitable for either a lady or gentleman, and very handsome. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

No. 135.—Pearl and Gold Pen Holder.—Price $3.00.—An elegant artiele for a lady's use, fitted into a kid case. Pearl handle and gold plate holder, with a real gold pen. Nothing could be a more beautiful present for a lady friend. **Presented,** post-paid, for **4** subscriptions at $1.50 each; OR, supplied for price, post-paid.

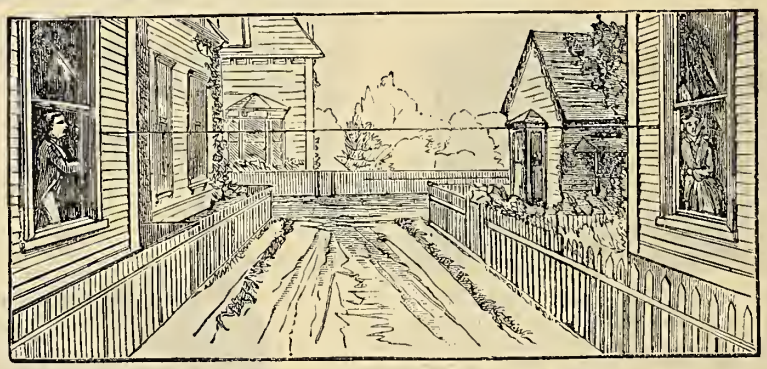
No. 136.—Gold Pencil Case.—Price $1.25.—This handsome Pencil Case measures only two inches when closed, having the patent Magic Bell Head. It is heavily plated with gold and exquisitely chased, and has a receptacle for leads, which is a great convenience. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.



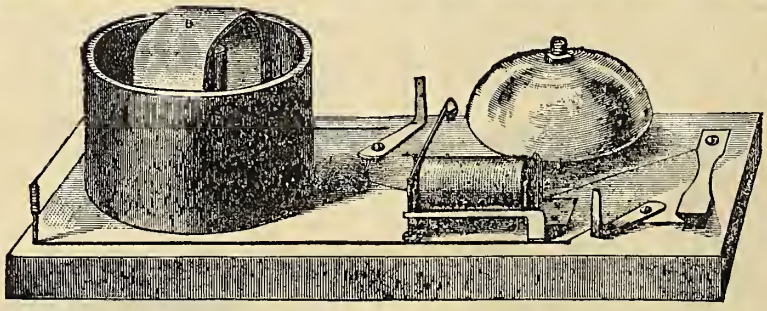
No. 137.—Gold Pen and Pencil Combined.—Price $3.00.—A most beautiful present for either a lady or a gentleman. Heavily plated gold case, containing a No. 4 diamond-pointed pen, *warranted*, and a movable pencil case. The engraving shows it as *pen* and *pencil*, also as *closed*, and ready for the pocket. This is a very handsome and reliable article. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price, post-paid. Either a stiff, limber, or medium pen may be had.

USEFUL, INSTRUCTIVE, AND ENTERTAINING.

No. 138.—Wilcox Telephone.—Price $1.00.—With 300 feet of Wire. This simple little instrument will meet a general want in taking the place of speaking tubes and electric bells, at *less than one-quarter* the cost. One of its many recommendations is the readiness with which it may be put to practical use, in connecting rooms or adjoining buildings. The manufacturers claim that it has been thoroughly tested, and is a perfectly reliable instrument. With it the farmer can have direct communication between his house and his barn, or some part of his farm; the merchant, manufacturer, or mechanic can connect his place of business with his home; neighbors can connect their houses, and boys and girls speak to their young friends from a distance. **Outfit** consists of: Two polished Walnut Transmitters; 300 feet Composition Wire; Leather Cords and Loops; Metal Screw Eyes for using at turns. All packed in a firm, wooden case, accompanied by exact and simple directions for putting up and operating. No intelligent person will have the least difficulty in arranging and conducting this Telephone, and its value for practical use is inestimable. It will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.



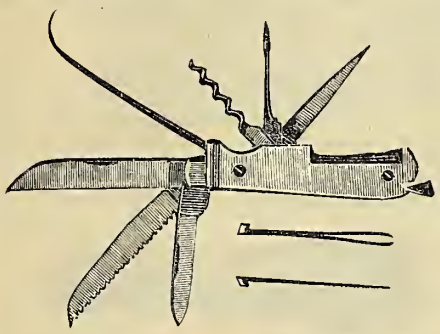
No. 139.—Magnetic Telegraph.—Price $1.00.—With this instrument boys and girls can learn the art of telegraphy, and at the same time enjoy a fascinating pastime. The base of the instrument measures 6¾ by 3 inches, and on this are the following: Carbon cell; zinc plate; induction coil; highly polished metal bell; a hammer; two switches; brass key; phial of bi-sulphate of mercury; besides, full directions for adjusting the battery, telegraphing between two stations, and making battery fluids. Also, the great "Western Union Telegraph Co.'s" code of signals—alphabet, numerals, punctuation, etc. The complete instrument will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Postage paid in either case.



CUTLERY, ETC.

Knives, Scissors, Etc.

No. 140.—The Pocket Knife to Have.—Price $4.00.—Any one who has ever owned or used a *Multum in Parvo*—"Much-in-Little" pocket knife, will testify to its being a most valuable companion for man or boy. It is, in fact, equal to a whole pocketful of tools, for numberless are the occasions on which it comes into use in the course of a day. It is made of good quality steel, and has ivory sides. When closed it is three



A Standard Premium.

inches long, neat and compact, not heavy and clumsy-looking, as are so many combination knives. A strong *Screw-driver* always at hand in the end of the knife, is effective in turning a screw of any size up to an inch, or even more, while the broad back of the hook is a small *Hammer*. Out of the end of the knife may be drawn a steel *Pointer*, nearly two inches long, which serves as a slim brad-awl, etc.; also a fine pair of *Tweezers;* from within the knife there opens the following: a large *Blade*, and a small one; a Saw with double row of teeth, strong enough to use on boards up to an inch thick; a good *Gimlet*; a three-cornered pointed steel *Punch*, or *Rimmer*, always useful for making holes in harness, wood, etc.; a *Corkscrew;* a hook, which folding over the smaller tools makes a sort of *Nut-cracker*, with the hollowed-out handle, and can besides be used for a number of purposes, such as raising a stove-lid, lifting any hot vessel, pulling on hoots, or taking gravel out of a horse's hoofs. The knife is worth much more than its mere cost—twenty-five per cent on which, for interest and wear, is *less* than *two cents* a week. **Presented,** post-paid, for **5** subscribers at $1.50 each; OR, supplied, post-paid, for price, to any place in the United States. The best knife, and the most popular we have ever offered.



KNIFE CLOSED.

No. 141.—Price $1.00.—It is a four-bladed pocket-knife, with a strong stag-horn handle. A most invaluable companion for man or boy. Either one of these knives will be sent, post-paid, for **2** subscriptions at $1.50 each.

No. 142.—Price $1.00.—A much larger knife, with a large and a small blade, and a stag-horn handle. A very useful knife to a farmer. **Presented** for **2** subscriptions at $1.50 each, post-paid.

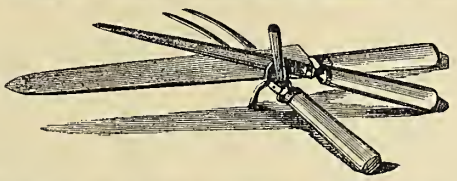
No. 143.—Price $2.00.—A remarkably handsome knife with four blades (fine quality steel), and pearl handle. Suitable for a present. Sent, post-paid, for **3** subscriptions at $1.50 each.

No. 144.—Price $2.00.—A Lady's Knife, very pretty and dainty-looking, and at the same time serviceable. The blades are of the best quality, and the handle of pearl. Sent, post-paid, for **3** subscriptions at $1.50 each. We will supply any of these knives, post-paid, for price.

No. 145.—Bread Knife.—Price $1.00.—A strong reliable article, made of the best steel, and with the word "Bread" engraved on the blade. Serviceable in any house. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price, post-paid.

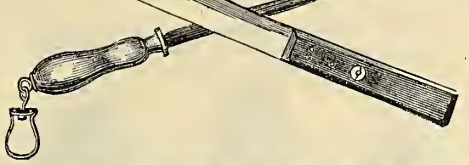
No. 146.—Table Knives and Forks.—Price $10.00.—One dozen knives, and one dozen forks of the best steel, will be acceptable to a housekeeper at any time. These are of medium size, and have strong, hard, rubber handles. **Presented,** post-paid, for **12** subscriptions at $1.50 each; OR, sent for the price, post-paid.

No. 147.—French Cook's Set.—Price $4.50.—Knife, fork, and steel, of fine quality, intended for *use*.



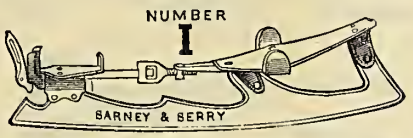
The handles are made of celluloid or "Patent Ivory," which does not crack by being put into hot water, and always looks the same. The knife blade is ten inches long. We **Present** the complete set, knife, fork, and steel, for **6** subscribers at $1.50 each; OR, supply it for price. Receiver to pay small express charges. (See below.)

No. 148.—Butcher's Knife and Steel.—Price $2.00.—Strong, and well made, and intended for *hard wear*. The material is of the very finest quality, and will not disappoint, but will prove satisfactory in

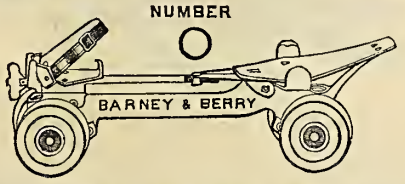


every respect. The knife is 8 inches, and the steel 10 inches long. We **Present** them *both* for **3** subscriptions at $1.50 each; OR, supply them, post-paid, for price.

No. 149.—Pair of Shears.—Price $1.00.—A sensible present to a lady, and serviceable to the whole household. Fine quality, and of a convenient size, with blades eight inches long. Sent, post-paid, for **2** subscriptions at $1.50 each; OR, supplied for the price, post-paid.



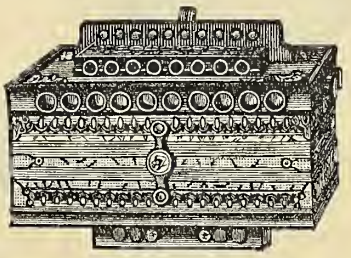
No. 150.—Barney & Berry's "I" Skates.—Price, No. 1, Blued, $2.75; No. 2, Nickeled, $3.25.—No further recommendation is needed of Skates from this manufactory, than the satisfaction they uniformly give. The Heel Plates, Foot Plates, Toe Clamps, and Brackets, are made from crucible cast steel, and blued. Blades fine finish. Mode of fastening, same as the keyless lever skate. **3** subscriptions at $1.50 each will secure a pair of these skates, No. 1, as above, or **4** subscriptions at $1.50 each a pair of No. 2; OR, they will be supplied at the price named, receiver to pay expressage. In ordering, state size required, in inches and half inches. To ascertain the size, measure shoe from back of heel to toe.



No. 151.—Barney & Berry's "O" Roller Skates.—Price, No. 1, Blued, $4.00; No. 3, Polished and Nickeled, $6.00. The mode of fastening these fine roller skates, is of the "keyless" style. Every pair includes the French heel attachment, as shown in the cut, and may be used as a lady's or gent's skate, with or without the attachment. **4** subscribers at $1.50 each will secure a pair of the Roller Skates, No. 1, or **6** subscriptions at $1.50 each, a pair of No. 3; OR, they will be supplied at the prices named, receiver in either case to pay expressage, which is small. In ordering, state size required in inches and half inches. To ascertain the size, measure shoe from back of heel to toe. (See below.)

MUSICAL INSTRUMENTS.

No. 152.—Accordeon.—Price $5.00.—This beautiful instrument has a double bellows, two sets of excellent reeds and a key-cover. It is of superior work-

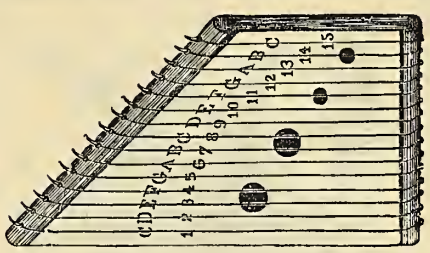


manship, the corners well protected by metal bands, and is very ornamental. **Presented** for **6** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay small express charges in either case. (See below.)

No. 153.—Concertina.—Price $3.50.—A very elaborately ornamented musical instrument of fine quality, and one which will entertain a whole room full of persons besides the performer. Only **4** subscriptions at $1.50 each are required to secure it; OR, we will supply it, post-paid, for price.



No. 154.—American Zither.—Price $1.50.—This beautiful, harp-like instrument is easy to play, and being both light and small, can be readily carried about. It measures 18x8 inches, has fifteen strings and a key, and is made of light varnished wood, finished in red. Its name, "American Parlor Resonans Zither," is stamped on the front, with the musical notes, and numeri-



cal figures, by means of which a person can learn airs by heart, or play them at sight. Accompanying the instrument is a collection of Popular Melodies—twelve in all, ten songs, a waltz and a schottische. The Zither is rapidly increasing in popularity as a musical instrument, both for ladies and young men. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Postage paid in either case.

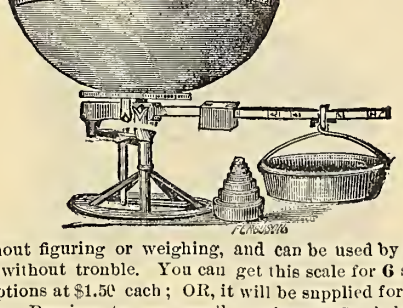


No. 155.—German Harmonica.—Price $1.50—This instrument is manufactured of finely polished black-wood, and nickel-plated, and contains forty eight notes and tremolo. It will give satisfaction, and always be a source of pleasure to its owner. Sent post-paid for **2** subscriptions at $1.50 each; OR, supplied, post-paid, for price.

No. 156.—Guitar.—Price $6.00.—A beautiful instrument, more easily learned than the piano, and very much in fashion. This one is quite handsome enough to please an accomplished musician, and is, besides, an elegant ornament in a parlor when decorated with bows of bright-colored ribbons. It is particularly suited for accompanying the voice. **Presented** for **8** subscriptions at $1 50 each; OR, sent for price. Receiver to pay expressage. (See below.)

TOOLS, FARM IMPLEMENTS, ETC.

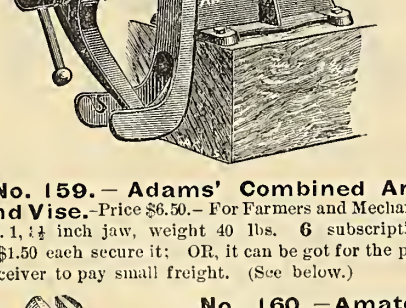
No. 157.—Butter Salting Scale.—Price $5.00.—Designed to meet the needs of all dairymen of a cheap, simple, accurate, and durable scale, always at hand, that will give any proportion of salt per pound



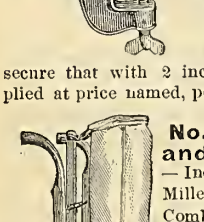
without figuring or weighing, and can be used by any one without trouble. You can get this scale for **6** subscriptions at $1.50 each; OR, it will be supplied for the price. Receiver to pay small carriage. (See below.)



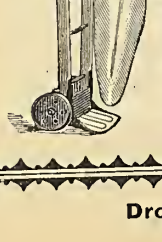
No. 158.—Farmer's Portable Forge.—Price $12.00.—Just the thing for Small Shops and Farmers. Will heat 1½ inch iron to welding heat. A farmer can save the price of it every year by Sharpening Plows, Mending Wagons and Machinery, Shoeing Horses, etc., besides saving time when a bolt breaks, having the means at hand for repairs. **12** subscriptions at $1.50 each will secure this Forge; OR, it will be supplied for the price. Receiver to pay small freight charges in either case. (See below.)



No. 159.—Adams' Combined Anvil and Vise.—Price $6.50.—For Farmers and Mechanics. No. 1, 1½ inch jaw, weight 40 lbs. **6** subscriptions at $1.50 each secure it; OR, it can be got for the price. Receiver to pay small freight. (See below.)



No. 160.—Amateur Vise.—Price $1.00.—With 1½ inch jaw, or with 2 inch jaw. Price $2.00.—These Amateur Vises are very handy things for light work. One new subscription at $1.50 will secure the Vise with 1½ inch jaw, or two at $1.50 each, will secure that with 2 inch jaw; OR, either will be supplied at price named, post-paid in each case.



No. 161.—Combined Truck and Bag Holder.—Price $5.00.—Indispensable for the Farmer, Miller, Merchant, or Manufacturer. Combining a simple and complete sack-holder, with a strong, neat, and desirable truck. It is attached to the truck by means of clamps, and held in its place at any desired hight by a thumb screw. **5** subscriptions at $1.50 each will secure this; OR, it will be supplied at the price. Small freight charges to be paid by receiver.*

No. 162.—A Farm Bell.—These Bells are made of the best Bell-Metal, have a deep, rich tone, and give universal satisfaction to farmers and others who have received them. They are richly bronzed, and the hangings are included with each bell. We offer three sizes, as follows:

Diameter, 16½ inches, weight, 65 lbs. Price $4.00
Diameter, 18½ inches, weight, 82 lbs. Price $6.00
Diameter, 21 inches, weight, 130 lbs. Price $10.00

We will supply the first named, for **5** subscriptions at $1.50 each; the second, for **7** subscriptions; the third, for **11** subscriptions, all at $1.50 each; OR, we will supply either at the price named. Receiver in either case to pay small freight. (See below.)

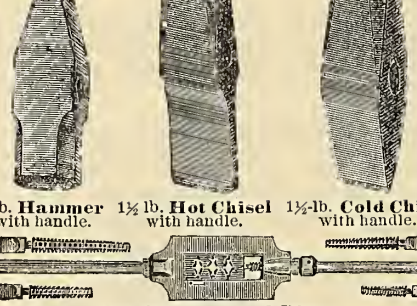


No. 163.—Farrier's Knife.—Price $1.00.—A useful premium. Sent post-paid for **1** new subscription at $1.50; OR, on receipt of price.

No. 164.—Farmer's and Mechanic's Blacksmith Tools.—Price $40.00.—This most useful set of tools includes the **Farmer's Portable Forge,** and the **Adams' Combined Anvil and Vise** (see Nos. 158 and 159), and also the following:



18-inch Tongs.



2-lb. Hammer with handle. 1½ lb. Hot Chisel with handle. 1½-lb. Cold Chisel with handle.



No. 34 Stock and Dies.

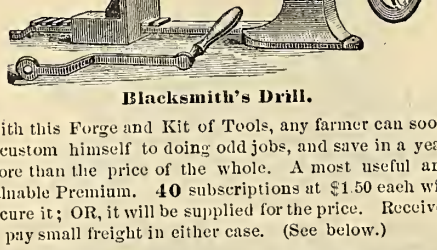


Farrier's Pincers.



Farrier's Knife.

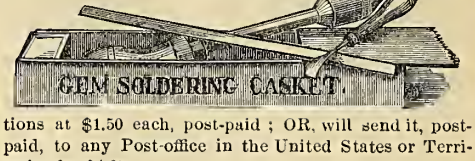
Shoeing Hammer.



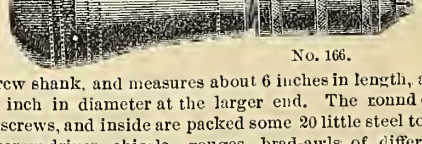
Blacksmith's Drill.

With this Forge and Kit of Tools, any farmer can soon accustom himself to doing odd jobs, and save in a year more than the price of the whole. A most useful and valuable Premium. **40** subscriptions at $1.50 each will secure it; OR, it will be supplied for the price. Receiver to pay small freight in either case. (See below.)

No. 165.—Gem Soldering Casket.—Price $1.25.—This premium will prove a means of incalculable saving, not so much of direct expense as of time, trouble, and patience. With the Gem Soldering Casket, all the tinware on the place can be kept in order, and made to last, instead of being sent to town, or laid by and forgotten. A set of printed directions accompany the Casket, and with this help, a little practice, and an ordinary amount of Yankee "knack" and determination, almost any man, woman, or child, can do all the soldering of the house and farm. The Casket is a covered box, containing a Soldering Iron, with copper-head pointed and tinned, a Bar of Solder, and a box of Soldering Salts. We **Present** the Casket and contents for **2** subscriptions at $1.50 each, post-paid; OR, will send it, post-paid, to any Post-office in the United States or Territories for $1.25.



No. 166.—Twenty Tools in One.—Price $1.00.—The Pocket Tool Holder, which at least *one* man in every family should possess, is called into requisition a dozen times in the day, whether in-doors or out. It is carried in the pocket, but will serve instead of a whole box of tools, when the latter is not easily obtainable. It is a strong, hollow, wooden handle, with a heavy metal



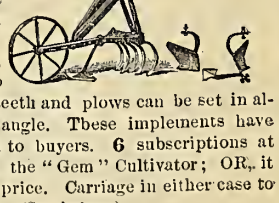
No. 166.

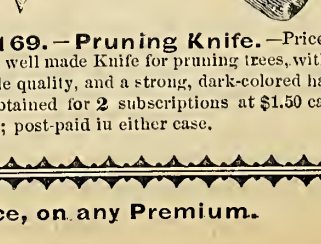
screw shank, and measures about 6 inches in length, and 1¼ inch in diameter at the larger end. The round cap unscrews, and inside are packed some 20 little steel tools—screw-driver, chisels, gouges, brad-awls of different sizes, etc., each of which fits into the clamp end of the handle, where it is held firmly by the metal shank. We **Present** the Holder and Tools complete for **2** subscriptions at $1.50 each; OR, supply it for price, post-paid in either case.

No. 167.—Curtis' Rectangular Churn.—Price, No. 0, $5.00; No. 3, $9.00.—Many thousands of these churns are in daily use, and they are giving abundant satisfaction. It is claimed for them, that in efficiency, economy and excellence, they are unsurpassed. **5** subscriptions at $1.50 each will secure No. 0, which is designed for one or two cows. **9** subscriptions at $1.50 each will secure No. 3, which holds 18 gallons—churns 9 gallons; OR, either will be supplied at prices named. Receiver to pay small freight in either case. We offer these two sizes of these churns; others are made. (See below.)

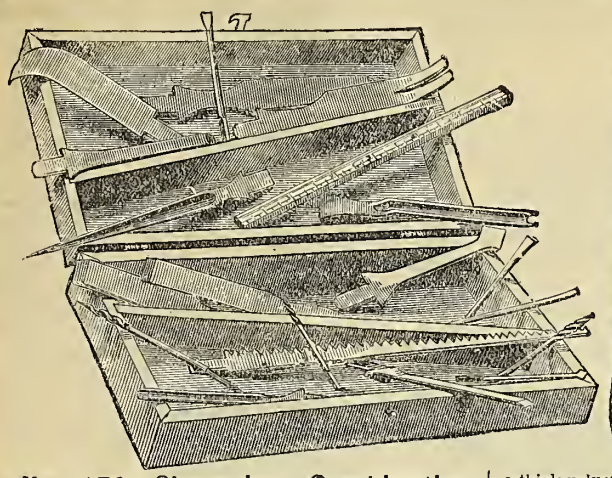


No. 168.—Hand-Cultivator—"Gem of the Garden."—Price $5.00.—The working parts of this effective and convenient tool are: 2 Scuffle or Cutting Blades, one 4½ and one 9 inches wide; 2 Plows, right and left-hand; 5 Stirring Teeth, all made of the best steel. The wheel and handles of the "Gem," are adjustable in hight, while the frame is so slotted that the hoes, teeth and plows can be set in almost any position or angle. These implements have given great satisfaction to buyers. **6** subscriptions at $1.50 each will secure the "Gem" Cultivator; OR, it will be supplied at the price. Carriage in either case to be paid by the receiver. (See below.)





No. 169.—Pruning Knife.—Price $1.00.—This is a well made Knife for pruning trees, with a blade of reliable quality, and a strong, dark-colored handle. It can be obtained for **2** subscriptions at $1.50 each; OR, for price; post-paid in either case.

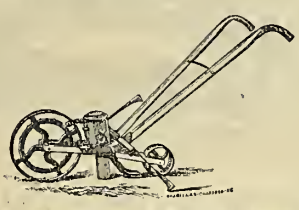


No. 170.—Champion Combination Tool Chest.—Price $4.00.—Any man or boy will appreciate this chest of tools, and realize the immense saving of time and money effected by having the proper implements always on hand. This chest is not large or cumbersome, yet it contains all the tools necessary for ordinary use. They are 25 in all, including chisels, saws, screw-drivers, gimlets, and a strong, good blade for pruning trees. Each fits firmly into a hard, wooden handle. **Presented** for **4** subscriptions at $1.50 each; OR, sent for price. Carriage prepaid. Very popular Premium.

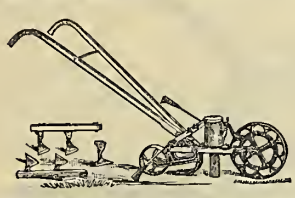
No. 171.—Farmer's and Housekeeper's Tool Set.—Price $1.50.—Sufficient for daily repairs in the house, and out-of-doors. Brace, Wrench, Screw-driver, Bits, Gimlets, Nail-set, etc. Made by the Clark Tool Company, and of the best material, and most improved pattern. Securely packed in a strong box. **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Carriage prepaid.



No. 172.—Hand Drill.—Price 60 cts.—An indispensable addition to a set of tools. This useful little instrument—drill stock and six drill points, packed in a box and post-paid, will be **Presented** to any present subscriber who sends **1** new subscription at $1.50; OR, supplied, post-paid, for the price.



No. 173.—Mathews' Garden Seed Drill.—Price $12.00.—Its excellence has been proved by many years' use. It is designed for the field or garden. When in operation, it opens the furrow, drops the seed accurately at the desired depth, covers it, and lightly rolls the earth down over it, and at the same time marks the next row. **12** subscriptions at $1.50 each will secure it; OR, it will be supplied at the price. Receiver to pay freight in either case. (See below.)

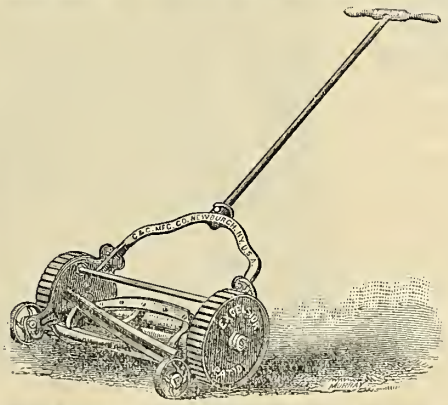


No. 174.—Mathews' Drill, Cultivator and Hoe Combined.—Price $15.00.—A most complete Combined Implement. When used as a drill, it possesses all the features of the separate Mathews' Garden Drill of a smaller size, and will sow all the different varieties of vegetable seeds as well as that, and when used as a Cultivator or a Hoe, it is substantially like the Mathews' Hand Cultivator, or the Wheel Hoe, and is fully equal to either of them. It will be given for **15** subscriptions at $1.50 each; OR, supplied at the price. Receiver to pay small freight in either case. (See below.)

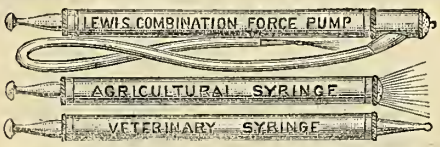


No. 170.

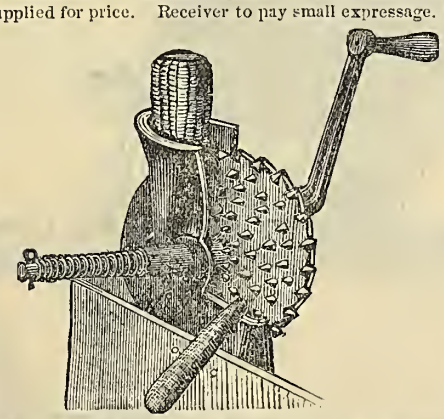
No. 175.—Excelsior Lawn Mower.—Price $15.00.—Experience proves, that no scythe or grass-hook can do its work as easily, neatly, or evenly as a lawn mower does. The extra expense will soon be made up, even if the grass-plot is restricted to the area of a small yard, for the grass will never be torn nor the roots injured, but it will soon present a beautifully even and luxuriant appearance. Every one should have a mower. There are many different styles, which may, or may not be excellent, the one we offer has been **tried** and **proved.** It runs with ease, makes very little noise, clears itself readily, and is of such simple mechanism, as to seldom need repairs. It is impossible to have a thick velvety turf without frequent mowing; the Excelsior turns the work into play. **Presented** for **15**



subscriptions at $1.50 each; OR, supplied for price. Receiver to pay small freight in either case. (See below.)

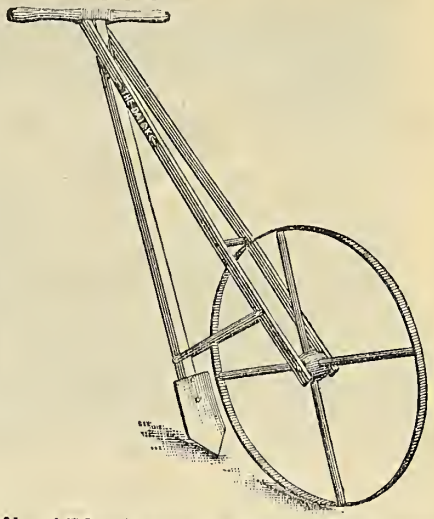


No. 176.—Lewis' Combination Force Pump.—Price $6.00.—This is made entirely of brass, and has three feet of hose attached, which will throw a stream of water to a distance of from fifty to sixty feet. As shown in the engraving, it can be converted as desired into a Veterinary Syringe, Agricultural Syringe, or Insect Exterminator; and is invaluable in cases of fire, or for washing wagons, windows, etc. **Presented** for **6** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay small expressage. *



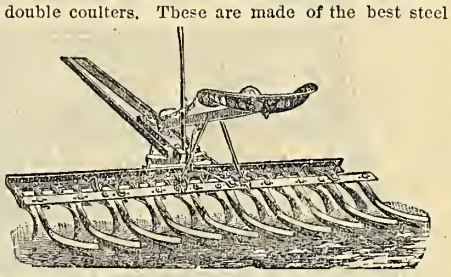
No. 177.—Wood's Patent Corn Sheller.—Price $3.00.—This is a perfectly simple machine, and will not get out of order if proper care is taken. It consists of a wheel, having upon the surface numerous short, blunt teeth, which remove the corn; a handle by which to turn it; and a spring to adjust the wheels to cars of different sizes. It will shell a whole bushel of corn in four minutes. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay charges for carriage in either case. We will furnish further particulars if desired. Very popular. (See below.)

No. 178.—Griffin Hack Saws.—Price $1.50.—Indispensable for repairing any farm implement that is made of iron. The Griffin Hack Saws are of the finest quality steel, and will saw metals more satisfactorily and quickly than they can be cut with a cold chisel. Each saw frame is supplied with a dozen blades. **Presented** for **2** subscribers at $1.50 each; OR, sent for price. Carriage prepaid.



No. 179.—Daisy Garden Plow with Steel Wheel.—Price $3.50.—This is the strongest, best finished, most satisfactory Garden Plow now made, and being inexpensive, meets the wants of the cultivator. The frame is very light and simple, consisting of but a few pieces firmly bolted together and braced. The wheel has a wooden hub, hickory spokes, and wrought iron tire; the spindle is formed by a short piece of gas-pipe between the double beam, and the whole Plow well finished, striped, and ornamented. It can be used in cultivating all kinds of vegetables, working equally well a bed of onions or rows of potatoes or corn, which no double-wheeled or shovel-plow can do. **Presented** for **4** subscriptions at $1.50 each; OR, supplied on receipt of price. Receiver to pay express charges. *

No. 180.—Acme Pulverizing Harrow.—Price $25.00.—A defect in our agriculture is the lack of a thorough preparation of the soil to receive the seed. We offer the "Acme" as an implement that not only pulverizes the soil, but crushes the clods and is an effective leveler. It will be seen by the engraving that the implement, instead of the usual spike-like teeth, has a row of double coulters. These are made of the best steel

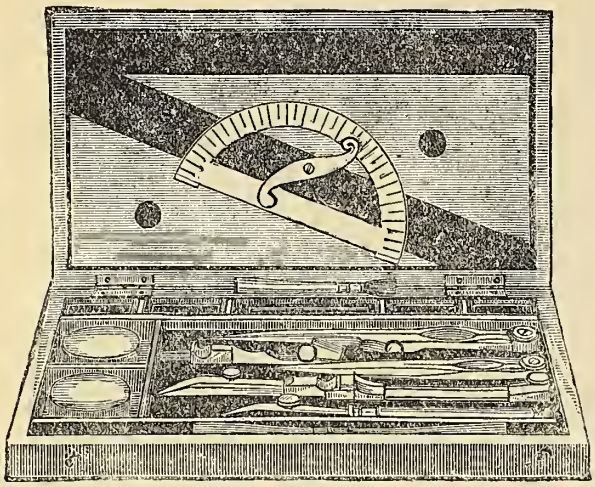


and bent into such a peculiar shape that, when the implement passes over the surface, these coulters cut, lift, and turn the soil in the most complete manner, leaving it in the condition of a thoroughly prepared seed-bed in a garden. We have watched the improvements that have of late years been made in the "Acme" with interest, and add it to our Premium List in the belief that we place within easy reach of the farmer one of the most effective implements of its kind. Thorough work with the "Acme" will tell at the harvest. **Presented** for **36** subscribers at $1.50 each; OR, sent for the price. Receiver to pay small freight charges. (See below.)



No. 181.—Whitman's Fountain Pump.—Price $8.50.—Weighs less than four pounds, so that even a child can use it, and save trees, vines, and plants from perishing of drouth. It is made of brass, with a sprinkler and rubber hose attached, and presents a handsome appearance. Serviceable for either farm or garden use, for washing carriages, horses, windows, verandas, etc., etc. No family should be without it. **Presented** for **10** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay freight in either case. (See below.)

Mathematical and Drawing Instruments.



We offer five sets of these valuable instruments, which will be found serviceable not to mechanics only, but to all who have occcasion to make exact drawings. There are few persons who will not find use for a case containing dividers, drawing-pens, scales, etc., each article fitting into a special compartment. These instruments, which were very popular as Premiums last year, we are able to offer at still better prices this year.

No. 182.—Price $5.00.—Is of extra quality and contains 12 pieces, nickel-plated. Handsome rosewood case lined with velvet. **Presented,** post-paid, for **6** subscriptions at $1.50 each; OR, supplied for price.

No. 183.—Price $4.50.—A fine Leather Case intended for carrying in the pocket, containing 11 pieces, nickel-plated, extra quality. **Presented** for **5** subscriptions at $1.50 each; OR, supplied, post-paid, for price.

No. 184.—Price $3.00.—Another Pocket Case, with leather cover. Very convenient for carrying. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price.

No. 185.—Price $2.60.—Of very good quality. Instruments made of brass and steel; 14 pieces, including brush and paints. **Presented,** post-paid, for **3** subscriptions at $1.50 each; OR, supplied for price.

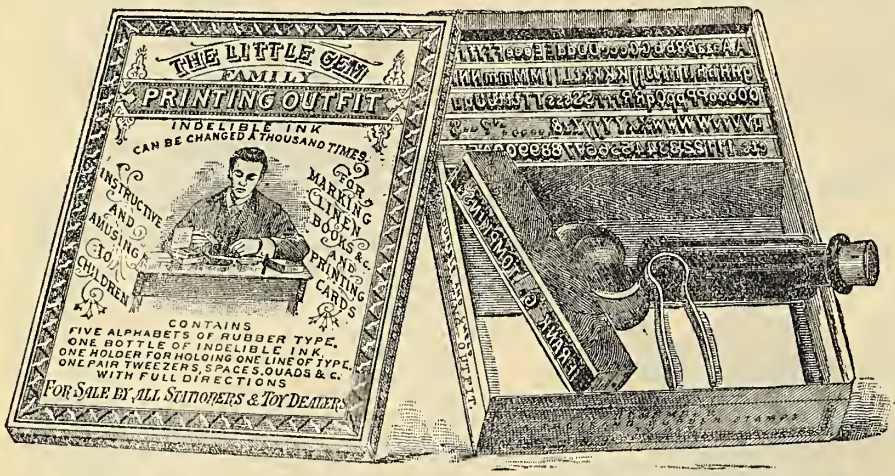
No. 186.—Price $1.80.—Case of stained wood, containing 9 pieces. **Presented** for **3** subscriptions at $1.50 each; OR, supplied for price, post-paid.

No. 187.—Box of Oil Colors.—Price $5.00.—A most complete box of Oil Colors, containing every thing necessary for painting, ready for immediate use. A very handsome and always acceptable present for a lady artist. The colors are of extra fine quality and fitted into a neat case of Japanned metal; brushes, palette, varnishes, stamp, saucers, palette knife, and full set of colors. **Presented** for **7** subscriptions at $1.50 each; OR, supplied for price. Receiver pay small carriage in either case.

No. 188.—"Murillo" Moist Colors.—Price $1.25.—Sixteen pans of superior quality moist colors, and tubes of Chinese white and sepia; four brushes all packed into a strong box, size 4x8, with a folding cover, and full directions for use of colors. This box will be a delight to all lovers of the art. Only **2** subscriptions at $1.50 each necessary; OR, we will supply it, post-paid, for price.

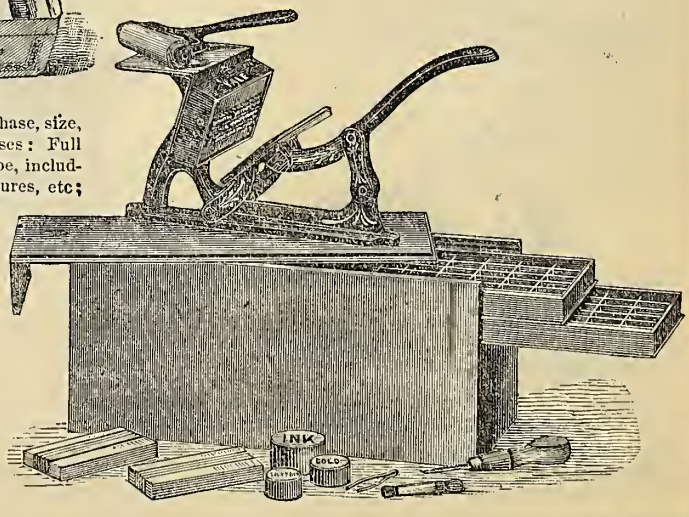
No. 189.—"542" Water Color Box.—Price 75 cents.—A very neat wooden case, 6x8 inches in size, containing sixteen cakes of the best imported water colors, two camel's-hair brushes, paint-saucers, copies for painting, etc. This box will afford many hours of pleasure to artists or beginners. We **Present** it, post-paid, for **1** subscription at $1.50 each; OR, supply it for price.

PRINTING PRESSES, ETC.



No. 190.—"Little Gem" Family Printing Outfit.—Price $1.00.—Any boy or girl can learn to print with this outfit, and spend hours usefully and pleasantly in marking books, letters, envelopes, papers, etc., or printing the names of the family on linen or cards. Five hundred cards can be printed in an hour's time. Directions for use are on the bottom of the box. The "Little Gem" is a beautifully lithographed metal case, containing 150 letters, figures, etc., Solid Rubber Type, a Palette for holding type, one pair Ink Pads, and one bottle Indelible Ink. The whole outfit will be **Presented,** post-paid, for **2** subscriptions at $1.50 each; OR, supplied, post-paid, for price. A most popular Premium last year.

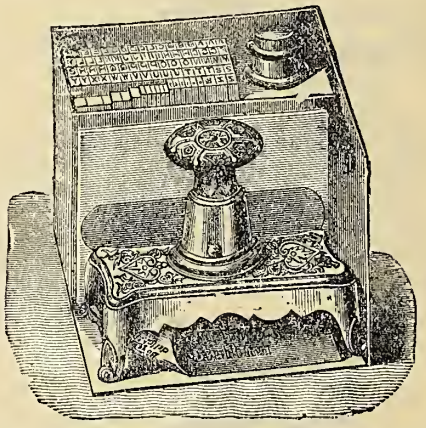
No. 191.—"Yale" Printing Press and Complete Outfit.—Price $4.50.—A treasure to its owner. Can be used for printing Address Cards, Tags, Envelopes, Visiting Cards, and for innumerable other matters. Press No. 2, with Screw Chase, size, 2x3½ inches. The outfit comprises: Full regular font Arabesque Address Type, including capitals and small letters, figures, etc; Full regular font Ornamental Card Type, with quads and spaces; Three-line Composing Palette for printing one, two or three lines at once; Can of superior black Printing Ink; Composition Inking Roller, with iron handle; Box rich Gold Bronze, for gold printing; Small Type Tweezers for picking up type; Two Type Cases, with hinged lids, and having together 72 compartments; small Lye Brush for cleaning Type; Screw-driver for chase and press screws; Pack Tinted Bristol Cards, assorted colors; Pack Fancy Chromo Cards, assorted designs. This valuable Press, with its complete Outfit, is securely packed in a wooden box, 12x5½x5 inches, with grooves for type cases, and a sliding cover. It will be **Presented** for **5** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay small freight charges in either case.



No. 192.—Commercial Printing Outfit.—Price $2.00.—By means of this inexpensive printing outfit, the work of a costly rubber stamp can be quickly, easily, and satisfactorily performed. It will be found serviceable for either household or business use, for printing tags, tickets, price-lists, etc. Into a substantial walnut box are fitted: Ten alphabets of solid rubber type, a three-line type-holder, three sets of solid figures, one pair type-tweezers, one bottle Rubber Stamp Ink, one pair Inking Pads, and full instructions for setting type and printing. The *whole* will be sent post-paid for **3** subscriptions at $1.50 each; OR, supplied, post-paid, for price. Very popular Premium.

No. 193.—Bonanza Printing Press.—Price $3.00.—A most complete set of printing materials with the Bonanza Press, and full directions by which any person, young, or old, can learn the art for either pleasure or profit. The press is made of malleable iron, japanned in black, with red and gold stripes. The Outfit consists of Composing Palette, two inch Composition Roller, one box Wade's Ink, one set Spacing Reglets, one pack White Bristol Cards, 2A, 3a, font of Fancy Card Type, including Spaces and Quads, which will print a name or a line of type. All packed in a wooden box, and **Presented** for **4** subscriptions at $1.50 each; OR, supplied for price. Carriage, which is small, to be paid by the receiver.

No. 194.—Combination Linen Marker.—Price $1.00.—A very useful article in any household. A young person can easily learn to use it, and do the card or linen marking for the whole family. Small card-



board box contains: Metal Linen Marker; a complete font of Type, with Periods, Spaces, etc.; bottle of Printing Ink; a Pad, etc. Full directions for setting type and using. **Presented** for **1** subscription at $1.50; OR, supplied for the price. Post-paid in either case.

FOR THE YOUNG FOLKS.

No. 195.—Mother Hubbard's Party.—Price $1.00.—A very absorbing, and perfectly harmless game, and one of which children will not tire. Made entirely of wood, so strongly, and at the same time so simply, that it can not get out of order. It measures 18x5 inches, and stands 10 inches high; can be played on either the floor or a table. Covered with funny pictures in brilliant and beautiful colors—the five smaller ones at the top are not seen at the beginning of the game, but



pop up when the balls are rolled against the **pegs** in front. A whole family—old persons as well as young—can be amused on a winter's evening with this sprightly game. It will be **Presented** for **1** subscription at $1.50; OR, supplied for the price. Receiver to pay small expressage in either case.

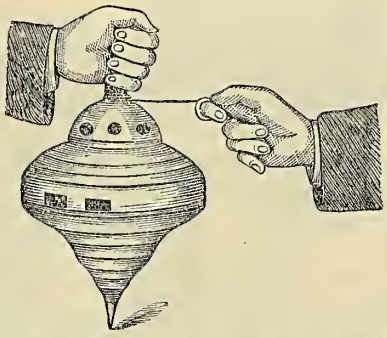
No. 196.—Spring Bagatelle.—Price $1.50.—Nearly every one knows this very pretty and fascinating game. Old as well as young persons are amused by it, and it serves to pass away a winter's evening pleasantly. It has one bell, and is well made. The game is for the players to take turns in shooting the Ball (by means of the spring), sending it in between the Pins and under the arches, until the sum of 300 is made. It will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied on receipt of the price. Receiver to pay expressage (which is not large), in either case.

No. 197.—Sloop.—Price 50 cts.—The Little Boy's Favorite is thirteen inches long from stern to bowsprit, and can not sink. Painted in bright scarlet, has a strong mast, and linen sails, with brass rings, etc. This trim little craft will be **Presented** for **1** subscription at $1.50; OR, sent for the price. Post-paid in either case.

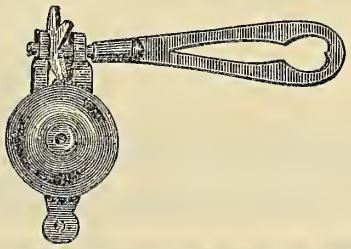


No. 198.—Game of Loto.—Price $1.00.—This very popular game can be played by any number of persons, and is entertaining to both young and old. The cards measure 6½x4 inches, and are stamped distinctly in black and green. The numbered pieces, which are of smooth wood with purple figures, are contained in a neat bag, and the glass markers in a special compartment. Full directions for playing accompany the game. The whole is packed in a strong lithographed box of peacock blue, with decorated cover. It will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case.

No. 199.—Dominoes.—Price 60 cts.—Patent embossed black Dominoes, with white spots. Though inexpensive, they are very durable, and not in the least trumpery looking, and are made by machinery, therefore exact. Fitted into a bright-colored lithographed box, and accompanied by full instructions for the following *ten* varieties of this popular game: Block, Draw, Muggins, Bergen, Rounce, Euchre, Poker, Bingo, Matador, and Tiddle-a-Wink. **Presented** for **1** subscription at $1.50; OR, supplied for price. Post-paid in either case. These Dominoes are exported to Europe in large quantities.



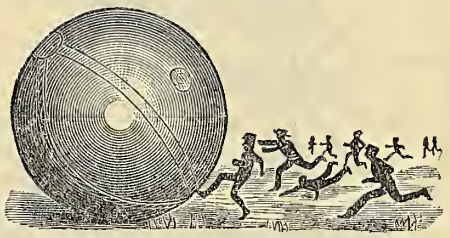
No. 200.—Top and Chimer.—Price 50 cts.—A beautiful "Coral" Humming-top, nearly six inches high, and twelve in circumference. Made of brightly colored metal, with a coral-wood handle, and a metal ring. Also a Rattle Chimer, with a clear, loud bell.



Made entirely of galvanized iron, very strong; can be heard at a long distance, and will answer the purpose of a call-bell, signal, or a toy for children. These two articles will be **Presented** for **1** subscription at $1.50, OR, supplied for the price. Post-paid in either case.

No. 201.—Toy Cannon.—Price $1.25.—This fine, strong field-piece for real firing on the "Fourth," etc., or for playing soldiers, measures 9½ inches from end to end; wheels 4 inches high. It is made entirely of iron, painted black, except round the mouth, where it is bright red. The gun moves on a pivot up and down. It will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for price. Receiver to pay small express charges in either case.

No. 202.—Smaller Cannon.—Price 75 cts.—This little cannon is exactly similar to the preceding, except in size and price. It measures 6¼ inches in length, and the wheels are 2⅛ inches high. It is light enough to be carried in the pocket, and will make plenty of noise when fired. **Presented** for **2** subscriptions at $1.50 each; OR, supplied on receipt of the price, postage prepaid in either case.

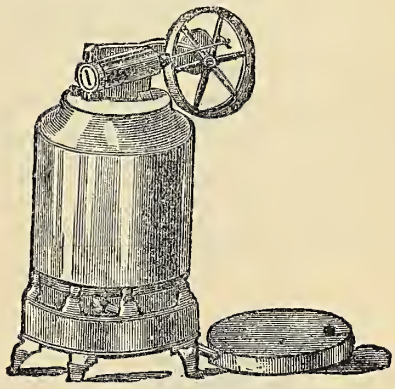


No. 203.—Foot Ball.—Price $1.50.—A splendid ball for the boys. Made of good quality India rubber, strong and durable. Size No. 2 measures eighteen inches in circumference, and has a short metal tube. Any boy who sends us **2** subscriptions at $1.50 each, may have this fine premium; OR, it will be sent for the price. Postage prepaid in either case.

No. 204.—Steel Magnet.—Price 60 Cents.—**Amusement and Instruction Combined.**—This premium will be found a source of endless amusement and instruction to young people, for when they have tried all the experiments here described, they will take pleasure in inventing others, and will be, at the same time, learning something of the wonderful science of Magnetism. The Magnet is horse-shoe-shaped, and has a soft iron bar called an Armature (*a*), which is to be removed when the Magnet is in use.

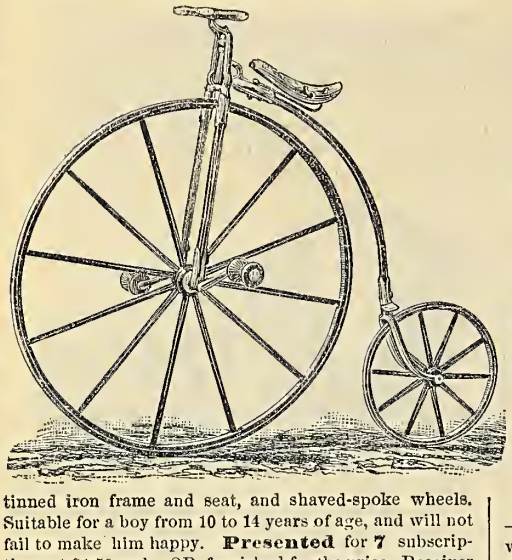


We give directions for a few of the curious experiments: If the Magnet is bent out straight, and hung up by the middle, the end marked N will always turn to the North. Rub the blade of a pen-knife on the Magnet, and the knife will become magnetic, *i. e.*, it will attract metals just as the Magnet does. Rub two knives on *different* arms of the Magnet, and the knives will cling together fondly if held near each other, but when rubbed on the *same* arm, the knives will not take any notice of each other. Rub a knife-blade or any piece of hard steel on the Magnet, and it will pick up needles, small nails, tacks, etc. Any intelligent boy or girl will find great amusement in these strange actions, and even grown up people will be amused and instructed by the Magnet. No family should be without one. We will send, post-paid, a very good 6-inch one (bar 13 inches long, weight 11 ounces,) for the price; OR, **Present** one to any boy or girl for **1** new subscriber at $1.50, post-paid.

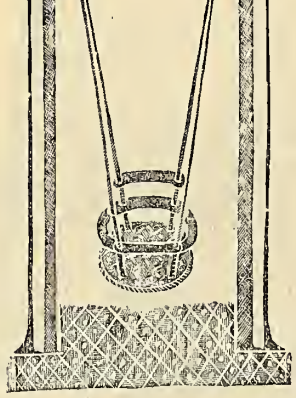


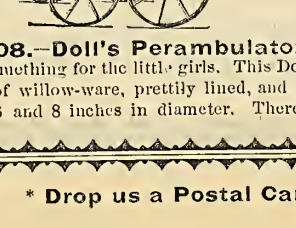
No. 205.—Eclipse Steam-Engine.—Price $1.00.—Four and a half inches high, with a brass boiler, a lamp, and two speeds to belt pulley. This engine is of sufficient power to run toy or model machinery, and will please intelligent lads. It will be **Presented** for **2** subscriptions at $1.50 each; OR, supplied for the price. Post-paid in either case.

No. 206.—Boy's Bicycle.—Price $6.00.—A never-failing source of delight to a boy is a strong, durable, well-made Bicycle. The one we offer possesses all these characteristics; it has a 32 inch front wheel, tinned iron frame and seat, and shaved-spoke wheels. Suitable for a boy from 10 to 14 years of age, and will not fail to make him happy. **Presented** for **7** subscriptions at $1.50 each; OR, furnished for the price. Receiver to pay freight charges in either case.



No. 207.—Child's Swing.—Price $1.00.—A delight to the little ones. Amuses them for hours at a time, and keeps them out of danger and mischief. An inexhaustible source of pleasure, so strongly made that that it will last for years, the only part to wear out being the ropes, which are easily replaced. Perfectly safe, as the child cannot possibly fall out, and can keep himself in constant motion. The seat has a soft, comfortable cushion, covered in pretty, bright-colored cretonne, and studded with brass-headed nails. The back, front and sides are of walnut, sliding up and down the ropes, for convenience in getting into the swing, and for carrying it about. Several yards of rope, and two steel rings are included, and the whole swing is ready for immediate use, requiring only to be put up. It can be hung from the branch of a tree, the roof of a veranda, or in a door-way, where it will be invaluable for amusing the little ones in bad weather. No family of children should be without at least one of these delightful swings. Even the baby can be trusted to it, and it is strong enough to be used by a child eight years old. **Presented** for **2** subscriptions at $1.50 each; OR, sent for price. Receiver to pay small expressage. (See below.)

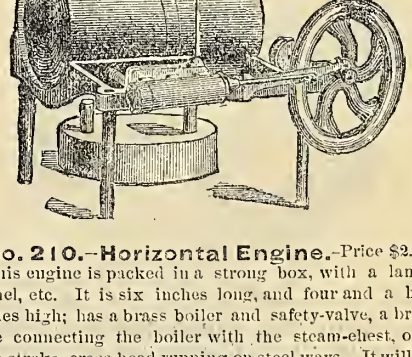




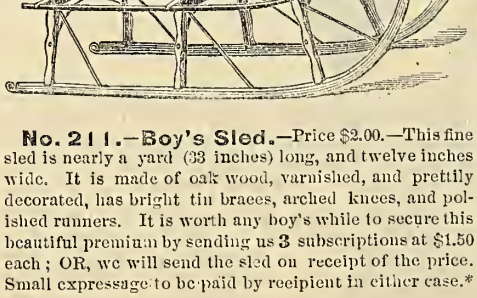
No. 208.—Doll's Perambulator.—Price $1.50.—Something for the little girls. This Doll-carriage is made of willow-ware, prettily lined, and the wheels measure 6 and 8 inches in diameter. There is a long handle at the back, and a movable parasol canopy for the waxen baby's protection from the sun. **Presented** for **2** subscriptions at $1.50 each; OR, furnished for the price. Receiver to pay small express charges in either case.



No. 209.—"Tally-Ho" Sulky.—Price $8.00.—This velocipede furnishes very healthful exercise, and was, for this reason, awarded a diploma of merit by the New Jersey State Agricultural Fair of 1882 (Sanitary Department). It is driven by the arms and steered by the feet, and is always popular among the little boys and girls. The one we offer is suited to a child from 4 to 10 years of age, and moves easily, but with great speed, is well and strongly made, and highly ornamental. It can be used in the house as well as out of doors, and so furnish amusement to children in bad weather as well as fine. **Presented** for **8** subscriptions at $1.50 each; OR, supplied for price. The small expenses of freight to be paid by the receiver in either case. (See below.)



No. 210.—Horizontal Engine.—Price $2.50.—This engine is packed in a strong box, with a lamp, funnel, etc. It is six inches long, and four and a half inches high; has a brass boiler and safety-valve, a brass pipe connecting the boiler with the steam-chest, one-inch stroke, cross-head running on steel ways. It will be **Presented** for 4 subscriptions at $1.50 each; OR, supplied for price. Post-paid in either case Popular Premium last year.



No. 211.—Boy's Sled.—Price $2.00.—This fine sled is nearly a yard (33 inches) long, and twelve inches wide. It is made of oak wood, varnished, and prettily decorated, has bright tin braces, arched knees, and polished runners. It is worth any boy's while to secure this beautiful premium by sending us **3** subscriptions at $1.50 each; OR, we will send the sled on receipt of the price. Small expressage to be paid by recipient in either case.*

No. 212.—Lion Savings Bank.—Price $1.50.—An amusing group. A coin is placed in the old monkey's paw, and when the spring is touched, the baby monkey leaps up and throws the money into the lion's mouth, which opens at the same instant. Bank unlocks underneath; painted in bright colors. Will be **Presented** to any one who will send **2** subscribers at $1.50 each; OR, will be supplied for the price. Receiver to pay small expressage. (See below.)



No. 213.—Boy's Wagon.—Price $5.00.—This Express Wagon will delight the small boys, and help them to be useful, by carrying parcels, etc., for their elders. It is strongly made, with a long handle, heavy round tire wheels, an iron axle, hub-caps, and a firm seat. The body is 28 inches long, well painted, and decorated, with its name on both sides. A sensible present to a little boy at any time of year. **Presented** for **7** subscriptions at $1.50 each; OR, supplied for the price. Receiver to pay small expressage in either case. *

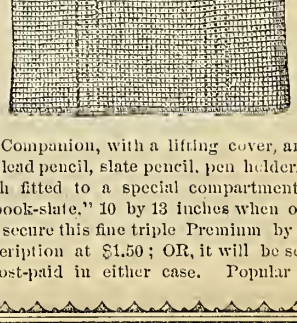
School Bags for Boys and Girls.

No. 214.—Patent-Leather Bag.—Price 60 cents.—A very pretty Bag that can be worn by either a girl or a little boy. Made of black patent-leather, figured; bound with tan-color, fastened with a strap and buckle, and lined with mouse-color linen. It has a long patent-leather strap with a buckle, for wearing over one shoulder. Measures 11x6½ inches inside. Will keep the books dry and safe. **Presented** for **1** subscription at $1.50; OR, sent for the price. Post-paid in either case.

No. 215.—Another Water-proof Bag.—Price 30 cts.—This Bag is a little smaller than the preceding, and so soft and light, that, when empty, it can be folded up and carried in the pocket. Made of black, oiled cloth, bound with black braid, has a metal clasp, and a pretty shoulder strap of red, white and blue. **Presented** for **1** subscription at $1.50; OR, sent on receipt of the price. Post-paid in either case.

No. 216.—Large School Bag.—Price 50 cents.—Made of black oiled-cloth, with tan-color binding, and long shoulder strap. Steel buckle, etc. Is perfectly water-proof, and large enough (13x10 inches) to hold all the books, including the big Geography. A strong and fine-looking bag for a boy or girl, when empty it can be rolled up with a small parcel. **Presented** for **1** subscription at $1.50; OR, sent for the price. Post-paid in either case.

No. 217.—School Set.—Price 75 cts.—A delightful premium for the boys and girls. Three prizes in one; no child should be without them. First, a school-bag, eighteen inches across, made of knitted twine, very strong and neat-looking; second, a painted tin case, or

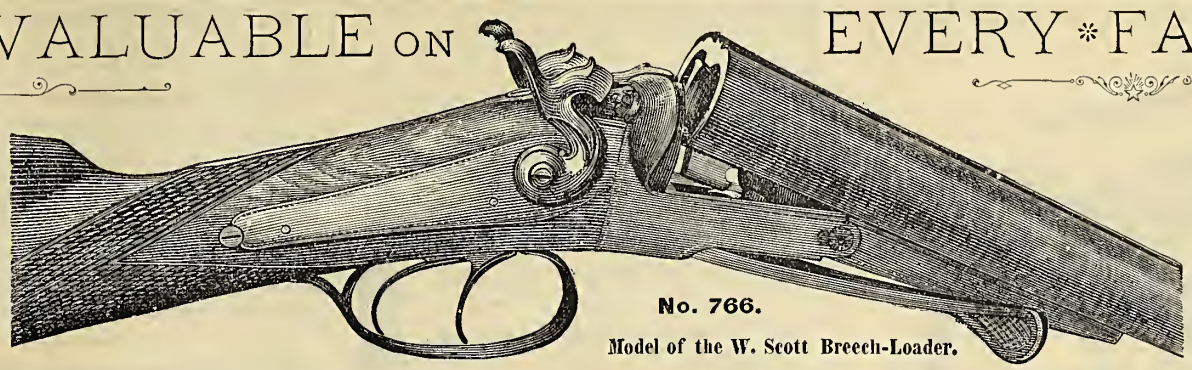


Scholar's Companion, with a lifting cover, and holding a sponge, lead pencil, slate pencil, pen holder, ruler and chalk, each fitted to a special compartment; third, a "crystal book-slate," 10 by 13 inches when open. Any child may secure this fine triple Premium by sending **1** new subscription at $1.50; OR, it will be sent for the price. Post-paid in either case. Popular Premium.

* Drop us a Postal Card to Learn the Exact Freight or Expressage to your Place, on any Premium.

INVALUABLE ON EVERY FARM.

AN ELEGANT GUN



No. 766.

Model of the W. Scott Breech-Loader.

FOR Everybody.

No. 218.—Remington's Double-Barreled Breech-loader.—Price $45.00—**If you want the BEST Gun** now made in this country, then we can give you the **Famous New Model Remington Double Barrel Breech-loading Shot Gun.** This Gun has the celebrated **Scott Pattern Top-Lever Action** (universally pronounced the best action ever produced), together with the Double Bolt, Rebounding Locks, large Head Strikers, Patent Fore-end and Extension Rib. The Barrels are of the finest quality of Decarbonized Steel, and the Stock is of selected Walnut, finely finished, with Pistol Grip checkered. Every one of these Guns is **Choke-bored,** and is thoroughly tested at the factory. Weight: from 8½ to 9 pounds. **We can from our own personal experience pronounce this Gun superior to any other in the market.** It is practically a **complete and perfect** Gun. Mr. Judd uses this gun every autumn with the greatest satisfaction. A very popular premium last year.

This **Superb** Fire-arm you can secure **free of cost** by sending us **55** subscriptions to the *American Agriculturist* at $1.50 each; OR, we will furnish the same for the price. Receiver in either case to pay carriage.

What our Patrons write us about this Gun.

MELROSE, Minn., Dec. 29, 1883.
The Famous New Model Remington Gun is entirely satisfactory. F. L. SMITH.

CALLSVILLE, Fla., Dec. 3, 1883.
I find the Famous New Model Remington Gun to be a superior one in every respect. I have killed Quail on the Wing at **Sixty Yards.** Yours truly, E. M. LAMBERT.

No. 219.—Double-Barreled Breech-loader.—Price $19.00.—**If you want a Superior Breech-loader,** we can furnish the **W. Scott (Belgian) Gun.** This Gun we **selected especially** for our readers, and after many thorough trials, can pronounce it the **best weapon** for the money now obtainable. It **gives universal satisfaction,** and both for **close and strong** shooting is equal to many of the Guns sold at double and treble its price. The barrels of this Gun are of **Fine Laminated Steel,** have been **thoroughly tested,** and are **absolutely safe.** The action is the celebrated Lefaucheaux pattern, which for both **reliability and wear** is **incomparably superior** to any side lever action now made.

Mr. Robert B. Roosevelt, the veteran sportsman, says in his volume, just published, entitled "Florida and the Game Water-Birds;" "I may say, that no guns could have been more severely tried than mine that were manufactured by Lefaucheaux, one of which was the second that was ever permanently used in this country, and that they have never given out in their working parts, while the oldest and most hardly used has never given out at all, although shot in all weathers, and under the most trying circumstances."

The celebrated "**Stonehenge,**" the recognized authority in Europe: says in his new work, "The Modern Sportsman's Gun and Rifle:" "This Lefaucheaux Action has maintained its ground as one of the strongest of all those known to gun makers."

This Gun has Steel Freed Locks, and the stock is of solid Walnut, oil-finished, and full checkered. We can furnish either 10 or 12 bores, 30 or 32-inch barrels—weight from 8 to 10 pounds. This most excellent Gun will be sent as a **free gift** to any one sending us **25** subscriptions to the *American Agriculturist* at $1.50 each; OR, we will forward it for the price. Receiver to pay carriage.

What our Patrons write us about this Gun.

SALEM, Va., Jan. 10, 1884.
W. Scott Gun received, have *fully tested* it, and am *much pleased.* Yours truly, J. WM. BUSHONG.

BEAUFORT, S. C., March 25, 1884.
I am satisfied with the W. Scott Gun, it shoots *remarkably well.* Yours respectfully B. B. SAMS.

ATLANTIC CITY, Jan. 17, 1884.
W. Scott Gun received. have tried it, and report: *well satisfied.* Yours respectfully, J. WOOTTON, JR.

FLAG SPRINGS, Mo, Jan. 8, 1884.
The W. Scott Gun arrived safely and gives good satisfaction—compares well with Gun of twice its cost. J. M. SHEPARD.

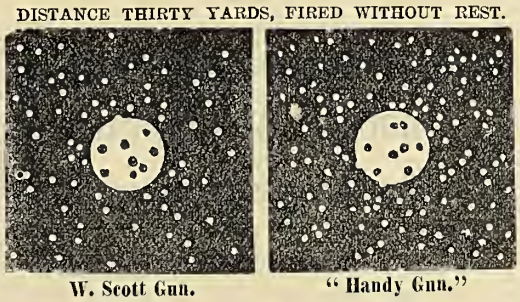
BUTLER, Ky., Jan. 15, 1884.
Received the W. Scott Gun in due time; have tested it; proves to be a *strong and accurate* shooter; am *well* pleased with it. Yours truly, C. A. WANDELOHR.

FORT COLLINS, Colo., March 9, 1884.
W. Scott Gun at hand *all right.* Two weeks ago, on trial, threw Buckshot 250 *yards.* Yours truly, H. T. MILLER.

DANBURY, Conn., Dec. 26, 1883.
The W. Scott Gun came to hand all right, and upon trial I find it to be a strong shooter. One of my neighbors has a $75.00 Parker Gun, but he cannot beat this W. Scott in shooting. Yours truly, S. J. SHERMAN.

No. 220—"Handy" Gun.—Price $4.50.—If you want an inexpensive Gun, we can recommend our **Handy Gun,** a **single barrel Muzzle-loader.** These Guns were made at the World Renowned Springfield Armory, were **thoroughly tested** in all parts, and bear the Government Inspector's marks, **guaranteeing the perfection,** both of **materials** and **workmanship.** The barrel is of **solid steel** of the **finest** quality, and is 32 inches long; the lock is of the same material, and the stock is American Walnut, oiled. This Gun we will **Present** to any one who sends us **6** subscriptions to the *American Agriculturist* at $1.50 each; OR, we will supply it for the price. Receiver to pay carriage.

DISTANCE THIRTY YARDS, FIRED WITHOUT REST.



W. Scott Gun. "Handy Gun."

What our Patrons write us about this Gun.

GROVEPORT, Ohio, March 31, 1884.
The Handy Gun came all right, and is all you claim it to be. Yours truly, JOSEPH S. LEIGH.

MANCHESTER, Mich., Jan. 4, 1884.
The Handy Gun you sent me I have received in good order, and am well pleased with it. Yours, HENRY SCHULTE.

OLD CHATHAM, N. Y., Jan. 18, 1884.
Handy Gun received. Am well pleased, think it a good article for the money. C. A. CASE.

REILEY SPRINGS, Texas, Jan. 21 1884.
The Handy Gun came in good time and order. Am well pleased with it. Respectfully, R. H. CALDWELL.

No. 221.—Rifles.—Price $26.00.—For **Hunter's or Sportsman's** use, the best single shot Rifle now made is unquestionably the celebrated **Remington Improved Creedmoor Rifle,** Hepburn's Patent. This superior fire-arm is equally well adapted for long range shooting or general use as a Hunter's and Sportsman's Rifle. It is the safest, most durable, and most accurate Rifle now obtainable. It has a solid Breech-block, with direct rear support, side-lever action, Rebounding Hammer, and Trigger always in the safety notch, thereby rendering premature discharge impossible. It can be had in 38, 40, or 45-Calibre, 28-inch Barrel with Pistol Grip. This Rifle will be **Presented** to any one sending **35** subscriptions at $1.50 each; OR, we will supply it for the price. Receiver to pay carriage.

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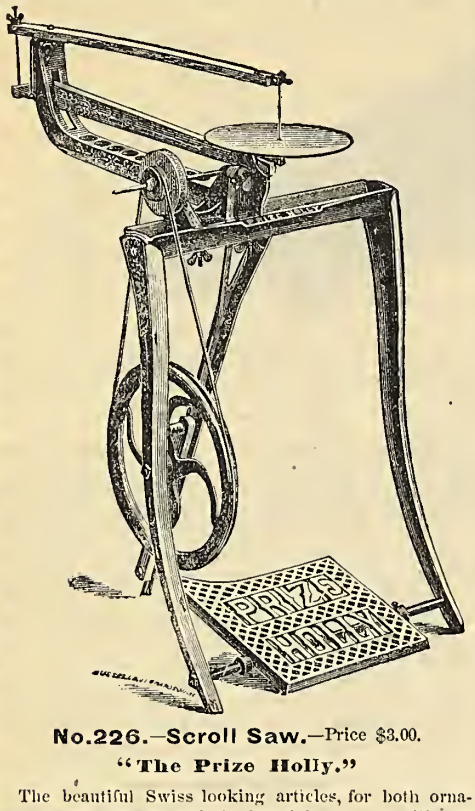
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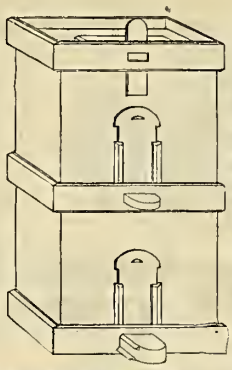
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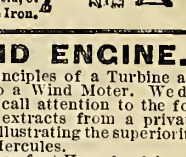
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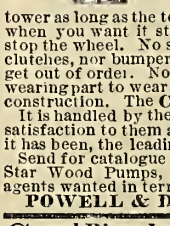
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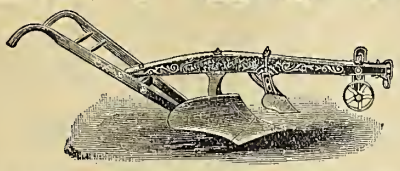
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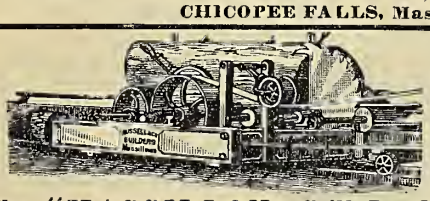


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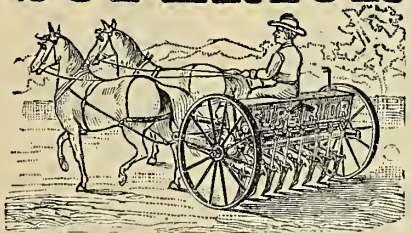


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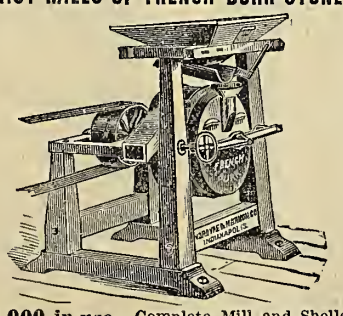
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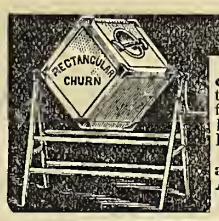
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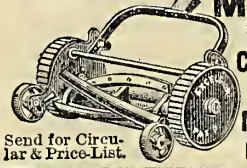
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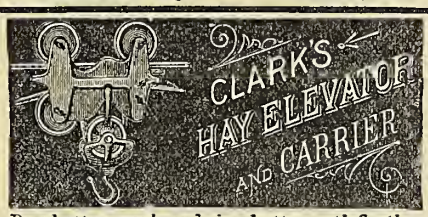
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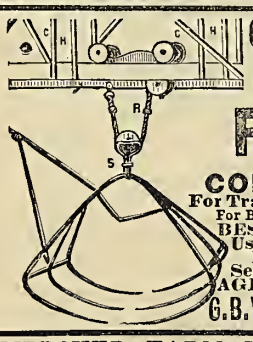


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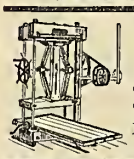
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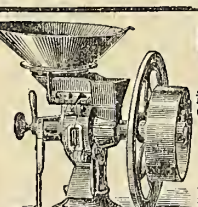
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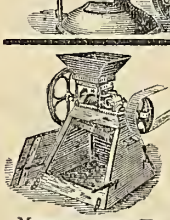


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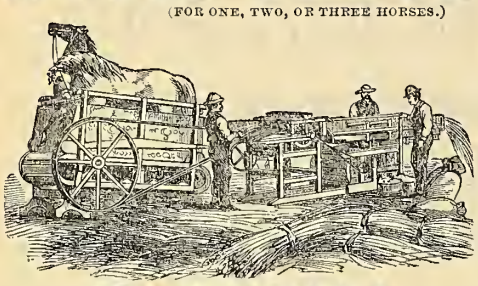
NAME.	Post Office Address.	Character of Land.	Gov't land.	Improved Land, p. a.	Price of Wild Land.	Any Railroads near you?	
Edgar Brintnall	Winthrop, Buchanan Co., Iowa.	Rolling prairie.	None	$25 to $50.	None.	Winthrop, R.R. station	1
R. Johnston & W. M. Shields.	Canton, Lincoln Co., Dakota.	Gently rolling prairie; black loam.	None	$12½ to $20	$5 to $12½	2 railroads.	2
L. R. Bingham	Swan Lake, Emmet Co., Iowa.	Gently rolling, very heavy growth of grass; black loam.	None	$10 to $20	$6 to $12	Railroad 8 miles off.	3
E. H. Staley	Frankfort, Clinton Co., Ind.	Good wheat and corn land, some prairie; mostly timbered.	None	$35 to $50	$15 to $25	4 railroads.	4
J. A. Maxwell	Currie, Murray Co., Minn.	Roiling prairie; black soil; numerous lakes.	None	$10 to $30	$6 to $15	3 railroads.	5
J. A. Holmes	Grand Island, Hall Co., Neb.	Sandy loam.	None	$10 to $100	$6 to $15	4 railroads.	6
W. R. Bierly	Grand Forks, Grd Forks Co., Dak.		..	$10 to $15	Lots $150 to $1000		7
E. J. Root	Gilmore City, Pocahontas Co., Ia.	Best in Iowa.	..	$20 to $30	$10 to $14		8
A. B. Dimond	Arcola, Douglas Co., Ill.	Best prairie; some timber.	None	$25 to $60	None.	2 at Arcola, 3 in county	9
Ralph K. Hill	Hardy, Nuckolls Co., Neb.	Rolling prairie; watered by Republican River.	None	$15 to $35	$11 to $15	2 railroads near town.	10
K. J. Kinney	Glenwood, Pope Co., Minn.	Prairie; black loam; clay sub-soil; timber.	..	$10 to $20	$5 to $10		11
J. S. Dutton	Wheaton, Pottawatomie Co., Kan	Upland and bottom land, limestone. Healthy climate.	..		$10	Kansas Central railr'd.	12
W. R. Edwards	Warren, Winona Co., Minn.	Inexhaustible prairie.	Yes	$10	$5 to $8, rebate.	Railroad through Co.	13
Rev. John M. Faris	Anna, Union Co., Ill.	Very fertile; clay soil; timber.	None	$8 to $50	$8 to $50	2 railroads in county.	14
H. C. Lawrence & Co	Brookville, Saline Co., Kan.	Loam and sand mixed.	None	$10 to $15	$4 to $12		15
S. K. Gregg	Lake Mills, Winnebago Co., Iowa.	Black loam; productive. Wheat 28 bushels per acre.	None	$15 to $25	$5 to $10	Railroad through town	16
N. C. Jones	Garden City, Finney Co., Kan.	Rich sandy loam.	Yes	$5 to $25	$2 to $8.50	2 railroads through Co.	17
J. P. Hodge	Golconda, Pope Co., Ill.	Hill land; clay soil.	None	$10 to $25	$1.50 to $6	1 railroad through Co'y	18
Ernest Savage	Ackley, Hardin Co., Iowa.	Prairie; good soil.	None	$25 to $50	$10 to $25	2 railroads at town.	19
Pioneer Register	Salem, McCook Co., Dak.	Undulated rolling prairie.	None	$2 to $10	None.	2 railroads at Salem.	20
T. M. Hopwood	Holdredge, Phelps Co., Neb.	Gently rolling; soil 2 to 5 feet deep.	None	$6 to $20	$4 to $10	Railroad through Co'y.	21
G. T. Williams	Ida Grove, Ida Co., Iowa.	Rolling; fertile.	None	$20 to $40	$12 to $25	2 railroads.	22
Robinson Watson & Co	Osborne City, Osborne Co., Kan.	Finest in the State.	..		$5 to $20		23
J. G. Routson	Columbus, Platte Co., Neb.	Rolling. No. 1 soil.	None	$10 to $25	$5 to $10	4 railroads in town.	24
J. B. Cook	Chetopa, Labette Co., Kan.	Rolling; limestone, or sandy loam. Coal mines on farms.	None	$20 to $30	None.		25
G. W. Franchere	Lake Crystal, Blue Earth Co., Min	Rolling prairie; well watered.	None	$12 to $30	$8 to $12	2 railroads.	26
Journal Office	Breckenridge, Summit Co., Colo.	Mineral and grazing. Gold.	Yes	Only min'g	Cat'e ran. & m'g	2 railroads, easy access	27
J. S. Foster	Mitchell, Davison Co., Dak.	Rolling; rich soil. Artesian wells.	Yes	$12 to $20	$5 to $7½	2 railroads thro' cou'y.	28
W. H. Boothroyd	Huron, Beadle Co., Dak.	Good grain and grazing.	None	$3 to $20	$3 to $20	Railroad, ½ m. distant.	29
George Sanborn	Fonda, Pocahontas Co., Iowa.	Deep, rich, black loam.	None	$15 to $25	$5½ to $15	4 railroads in county.	30
W. F. Wallace	Hallock, Kitson Co., Minn.	Rich, black soil; best in the world.	Yes	None off'd.	$3 to $10	Railroad through town.	31
C. J. Lamb	Kirwin, Phillips Co., Kan.	Level, bottom land; rich, black loam.	Yes	$10 to $12	$4 to $5	Railroad near.	32
G. C. Britton	Northville, Spunk Co., Dak.	Black loam; yellow clay sub-soil.	None	$10 to $20	$4 to $10	Railroad 4 m. dis.; 3 in c.	33
D. Crowley	Colombia, Brown Co., Dak.	Rich soil; yellow clay. Good water.	None	$3 to $6.50	Reasonable.	Railroad terminus.	34
Mrs. Samuel Shaw	Ayr, Langlade Co., Wis.	Clay loam; vegetable mould. Hard-wood.	Yes	$25	$½ to $2½	Railroad 12 m. distant.	35
Frank & Elmendorf	Corning, Adams Co., Iowa.	Rolling prairie. Timber.	None	$20 to $60	$10 to $20	Railroad through town	36
L. H. Wilson	Keystone, Dickey Co., Dak.	Undulating prairie; black loam, free from stones.	Yes		$5 to $8	2 railroads in county.	37
Cowgill & Endicott	Traer, Tama Co., Iowa.	Rich soil; most fertile in Iowa.	..	$30 to $60	$10 to $12	Railroad near.	38
Albert S. McMillan	Verndale, Wadena Co., Minn.	Fine sandy loam. Plenty of timber. Good water.	Yes	$10 to $20	$2½ to $6	2 railroads in county.	39
D. J. Carpenter	Beloit, Lyon Co., Iowa.	Finest prairie in the world.	None	$5 to $20		On railroad.	40
Matt. W. Alderson	Bozeman, Gallatin Co., Mont.	Black loam.	Yes	$3 to $30	$3 to $30	1 railroad, N. Pacific.	41
J. S. Letford	Lamberton, Redwood Co., Minn.	Prairie, black soil. Timber. Good water.	Yes	$5 to $10	$5 to $7	2 railroads thro' coun'y	42
A. C. Brown	Independence, Montgo'y Co., Kan	Prairie; good agricultural and grazing land.	None	$10 to $100	$5 to $20	1 railroad thro' town.	43
C. H. Simmons	North Bend, Dodge Co., Neb.	Deep, black soil, very productive. Platte valley.	None	$20 to $50	$10 to $25	Union P. thro' valley.	44
F. M. Barnard	Speucer, Clay Co., Iowa.	Good upland prairie.	None	$15 to $30	$10	2 railroads thro' county	45
Sherman & Hicks	Cambridge, Croley Co., Kan.	Bottom and upland.	Yes	$12 to $25	$4 to $12	Railroad thro' town.	46
G. W. Garret	Redfield, Spink Co., Dak.	Clay sub-soil, very rich.	None	$3 to $12½	Tree clm's $2-$3	Railroad 100 miles off.	47
Hugo Preyer	Denver, Arapahoe Co., Colo.	Very good. Usually needs irrigation.	Yes	$50 to $200	Only Gov. land.	Railroads to all parts.	48
R. C. Brown	Mt. Pleasant, Henry Co., Iowa.	Deep, rich soil, fertile. Prairie.	None	$30 to $60	None.	2 railroads.	49
J. L. Edwards	Pawnee City, Pawnee Co., Neb.	Undulating prairie. Timber. Well cultivated.	Yes	$20 to $40	$10 to $20	Railroad thro' county.	50
A. H. Chase	Glenullen, Morton Co., Dak.	Rich, very fertile. Coal.	Yes		$3¾ to $8	1 railroad.	51
Benj. Goodkind	Williams, Colusa Co., Cal.	Sand, clay; alkali.	Yes	$15 up.	Gov't price.	Railroad passes town.	52
J. B. Estes	Woonsocket, Dak.	Black loam and sand.	None	$8 to $12	$2 to $5	2 railroads at town.	53
H. C. Crawford	Buena Vista, Chaffee Co., Colo.	Sandy; very fertile. Mines.	Yes	$25 to $250	Gov't price.	2 railroads cross here.	54
H. P. Sweet	Centreville, Turner Co., Dak.	Sandy loam, 3 feet soil.	None	$8 to $12	$5 to $10	1 railroad, pros't 2 m'e.	55
D. T. Upchurch	Galatia, Saline Co., Ill.	Level and hilly. Timber.	None	$8 to $30	$2½ to $10	2 railroads thro' county	56
C. B. Roberts	Beaver City, Furnas Co., Neb.	Rolling prairie. Soil deep and fertile.	Yes	$8 to $15	$5 to $10	Railroad thro' county.	57
J. Rogers	Pennington, Lyon Co., Iowa.	Rich black loam.	None	$15 to $25	$8 to $16	Main line here	58
E. H. Sawyer	Canon City, Fremont Co., Col.	Sandy soil for fruits, etc. Clay for cereals, etc.	None	$75 to $150	$25 to $75	Railroad through City	59
A. B. Lucas	Castalia, Charles Mix Co., Dak.	Prairie land and fertile bottom.	None	$8 to $10	$3 to $6	" 30 miles off	60
B. R. Howell	Howell, Hand Co., Dak.	Black loam; best soil, level and gently rolling.	little	$4 to $10	None	" 20 miles off	61
T. H. Bryant	81 Clark St., Chicago, Cook Co, Ill.	Good prairie.	None	$5 to $100	Unimpr. $5 to $10	" 90 miles off	62
R. A. Bain	Hanover, Jefferson Co., Ind.	Limestone, red and white clay on flats.	None	$25 to $100	None	2 railroads	63
Battee & Beacorn	Smith Centre, Smith Co., Kan.	Table land. Splendid water-power. Agri'l & stock-raising.	..	$5 to $15		2 through County	64
J. T. Austin	Mapes, Nelson Co., Dak.	Fine farming country. Wheat 22 to 27 bushels per acre.	Yes	$8 to $15		Town is on railroad	65
E. W. Bennet	Hitchcock, Beadle Co., Dak.	Deep black loam; gently rolling. Wheat; small fruit.	None	$12 to $20	$5 to $10	Three railroads	66
Herald-Tribune	Wayne, Wayne Co., Neb.	Best in State; slightly rolling. All arable.	None	$15 to $50	$6 to $16	Thro' Town & County	67
F. J. Ryan	Blunt, Hughes Co., Dak.	Bottom land; black loam.	None	$2.50 to $6	None	Railroad thro' County	68
J. S. Flint	Great Bend, Barton Co., Kan.	Magnesia limestone soil. Richest lands in State.	None	$6 to $12	$5 to $7	1 railroad thro' County	69
E. S. Bower	Lincoln, Lincoln Co., Kan.	Black loam, with clay sub-soil.	little	$2.50 to $10	$2 to $5	25 miles away	70
DeWitt C. Smith	Stone Fort, Saline Co., Ill.	High, dry, gently rolling ground.	..	$10 to $25	$3 to $8	Railroad in vicinity	71
W. J. Cuddy	Caldwell, Ada Co., Idaho.	"Sagebrush"—a sandy loam.	Yes	$10 to $100	$1.25	Railroad thro' County	72
Benj. F. Harris	Newton, Jasper Co., Ill.	Soil varies from close clay to rich, black loam.	None	$15 to $20	$8 to $15	3 Railroads in County	73
C. C. Campbell	Bunker Hill, Macoupin Co., Ill.	Very good for wheat, corn, oats, grass, fruit, potatoes.	None	$30 to $60	None	3 Railroads in vicinity	74
Ephraim S. Lawrence	Eckelson, Barnes Co., Dak.	Very fine black loam, with very little sand.	little	$5 to $20	$3.50 to $10	N. P. main line thro' Co	75
Willamette Farmer	Salem, Marion Co., Oregon.	Prairie, interspersed with wooded hills.	little	$20 to $50	$2.60 to $8	Railroad through City	76
C. L. Knapp	Burr Oak, Jewell Co., Kan.	Good black loam soil.	None	$8 to $25	$6 to $10	Railroad here	77
W. A. Wash	Goldendale, Klickitat Co., Wash.	Elevated region. Timber. Good water. Agri'l & grazing.	Yes	$5 to $20	160 a. for off. fee	R. R. near border of Co.	78
D. L. Pratt, Jr.	Fort Randall, Todd Co., Dak.	No large hills, no flats. Good farming & stock-raising land	..	$5 to $9			79
Geo. C. Stoughton	Diana, Sanborn Co., Dak.	Very good. Agricultural and grazing.	None	$5 to $10	$2 to $5	3 Railroads	80
A. Brooke	Detroit, Becker Co., Minn.	Loam, partly gravel; mostly clay-sub-soil.	Yes	$10 to $50	$4 to $10	North. Pac. thro' Cou'y	81
J. A. Purdy	Bowesmont, Pembina Co., Dak.	Flat black clay loam; clay sub-soil.	Yes	$10	$5	Railroad in County	82
J. F. Duncau	Madison, Madison Co., Neb.	Black vegetable mould; 2 to 6 feet deep.	None	$15 to $30	$6 to $15	2 railroads	83
W. H. Hubbard	Fairview, Lincoln Co., Dak.	Dark sandy loam, very rich.	Yes	$6 to $20	None in market	Within 140 miles	84
A. C. Maude	Bakersfield, Kern Co., Cal.	Friable loam. Arable lands, very fertile. Gold mines.	Yes			Yes in County	85
F. H. Joncs	Antelopeville, Cheyenne Co., Neb.	Rich soil with limestone. Hay lands, natural growth.	Yes	$25 to $35	$3 to $5	Union Pac. thro' Cou'y	86
Geo. W. Perry	Burr Oak, Jewell Co., Kan.	Soil dark clay, very productive.	None	$10 to $50	$7 to $15	Railroad thro' County	87
Geo. C. Sohr	Estelline, Hamlin Co., Dak.	Black sandy loam with clay sub-soil.	little	$6 to $12	$3 to $6	Railroad station	88
Geo. H. Pardee	Teagues, Webster Co., Mo.	Very productive. Healthy climate.	Yes	$10 to $25	$1 to $3	2 railroads	89
K. H. Keeny	Spokan Falls, Spokan Co., Wash.	Sandy loam.	little	$5 to $20		3½ miles, & enters Town	90
J. B. Elliott	Oneida, Nemaha Co., Kan.	Good abundant crops of all kinds.	None	$20 to $30	$15 to $20	On railroad	91
L. V. Davis	Edmond, Norton Co., Kan.	Gently rolling prairie. Deep loam; mixture magnesia.	Yes		$3 to $8	Railroad thro' Town	92
R. M. Gardner	Newry, Freeborn Co., Minn.	None better.	Yes	$12 to $35	$5 to $12	2 railroads	93
E. S. Davis, Jr.	Rubens, Jewell Co., Kan.	Rich soil.	None	$15 to $20	None	2 railroads	94
E. Mapes	Mapes, Nelson Co., Dak.	Rolling prairie.	Yes	$10 to $20.	None for sale.	Mapes is R. R. station.	95
C. A. Lounsberry	Bismarck, Burleigh Co., Dak.	Undulating prairie, black loam, subsoil, lime.	Yes	$10.	$5.	Railroad through Co.	96
W. Burgess	National City, San Diego Co., Cal.	Upland and valleys, rich soil.	Yes	$50 to $100.	$5 to $150.	Railroad terminus.	97
Peter Mathison	Romness, Griggs Co., Dak.	Rolling prairie, black sandy loam.	Yes	$7 to $15.		Railroad terminus near	98
Andrew Vassie	Cavalier, Pembina Co., Dak.	Rich black sandy loam, good clay sub-soil.	Yes	$5 to $25.	$1 to $20.	Nearest in Minnesota.	99
C. H. Baldwin	Terrace, Pope Co., Minn.	High rolling prairie. Good water. Black loam.	None	$15 to $ 5.	$4½ to $7½.	Railroad through Co.	100
H. H. Russell	Roslyn, Day Co., Dak.	Loam. Best soil.	Yes	$3 to $10.		At 10 miles distance.	101
B. F. Prather	Havana, Montgomery Co., Kan.	Rich sandstone. Timber; good water.	None	$10 to $20.	None.	Plenty.	102
J. H. Burmester	Banks, Fairbault Co., Minn.	Good prairie, black clay soil, little sand.	None	$12 to $20.	$8 to $10.	Within 6 miles.	103
J. H. Dorsey	Opolis, Crawford Co., Kan.	Light sandy to black loam.	None	$17.50 to $30	$10 to $20.	Railroad thro' village.	104

INFORMATION FREE FOR EVERYBODY.

roughly estimated by the tens of thousands. We continue to urge migration Westward, and with a view to affording our readers direct information free of cost, we have invited those on the ground who are willing to answer inquiries without cost to send us their names. Below we print the first batch received up to the time of going to press :

	Pop. of Cou'ty.	Character of the Population.	What Foreign Population?	What Churches?	Schools.	Cost of Lumber per 1,000.	Buy land on time.	R. R. land.
1	18,500	Good.	Irish, German, Danish.	Cong'l, Pres., Bap't, R. C.	Good schools.	1st, com. dres'd, $40	3 to 5 years' time.	None
2	10,000			All leading denominations	Yes.	$15 to $15	¼ to ½ cash, balance on time.	None
3	3,000	Quiet, and industrious.	Some Irish and Norwegian.	Presbyterian, Congrega'l.	Yes.	$10 to $25	To suit buyer.	None
4	27,000	Industrious, moral.	Few Irish and German.	Plenty.	Graded schools in all to'ns	$15 to $19	½ cash, ¼ lu a year, bal. 2 y's.	None
5	6,000		Eng., Irish, Scotch, Ger., Fr., Scan	15, mostly Prost't, one R.C.	56 schools.	Chicago prices.	5 to 20 years, 7 per cent.	..
6	15,000		German.	M.E., Con., Bap., Epis., R.C	64 in the county.	$18 to $60	10 years.	Yes
7	5,000							Yes
8								..
9	15,000	Good.	German, Irish, English.	Meth., Presb'n, Baptist.	A school every 2 miles.	$18 to $40	¼ to ½ on 5 years' time.	None
10	8,000		Few Danish and German.	M. E., Presb'n, Lutheran.	42 schools.		¼ to ½ cash, bal. in 3 to 10 years	None
11	6,000		More than half Scandinavian.	Meth., Baptist, Presby'u.	60 school districts.	$10 to $30	10 to 20 years' time.	Yes
12		Quiet, law-abiding.			Plenty of schools.	About $12 up.	Imp'd farms, $12 to $20 an acre	..
13	6,000		One half Scandinavian, German.	1 Meth., 1 Pres'n, 2 Scand'n	Good graded school.	$15 up.	Yes.	Yes
14	20,000	Agr'l and enterprising.	Many German farmers.	Numerous Protestant.	Many.	$10 to $25	Usual time payments.	Yes
15	14,000		French, Germau, Swedish.	Methodist, Congregational	Good schools.	$20 to $40	20 years.	Yes
16	7,000	Honest, courteous.	Scandinavian.	Meth., Luth., Christian.	Many good schools.	Common, $16 to $30	Long or short time.	None
17	2,000	Farmers and stock ra's	Eng., Irish, German, Scotch.	Meth., Bap., Con., R.C., C'n	Good.	$20 to $35	3 to 10 y's, $3, 1-10 cash, ½ 20 y.	Yes
18	16,000	Thrifty and progres've	German.	Abundant.		$10 to $15	1 to 5 years.	None
19	17,000		German, Irish.	Cath., Pres'n, Meth., Luth.	Good.	$14 to $33	Part cash, balance 2 to 10 years	None
20	8,000		German, Norwegians.	Reformed and Catholic.	Salem high school.	$16 to $50	As much time as desired.	None
21	5,000	Sober and industrious.	Half population from Sweden.	Meth., Evan., Bap., Lu., Cr	Graded school in city.	$26 to $30	1 to 10 years, 6 per cent inter't.	Yes
22	10,000		German, Swedish.	Meth., Pres., Cath., Bap., Ep	On every hill-top.	$20.	As much time as wanted.	Yes
23								..
24	10,000		German, Swedish, Irish.	Churches all over county.	Schools all over county.	$18 to $27	1 to 10 years.	None
25	27,000		Ten per cent European nations.	Pres., Cath., Meth., Bap.	104 school houses.	Common, $20	¼ cash, bal. 2 to 3 y'rs, 7 p. ct.	None
26	25,000	Progressive and indus.	German, Irish, Welsh, Scand.	Pres'n, Meth., Episcop'n.	200 school districts.	$12 to $18	3 to 5 years.	Yes
27	4,000	Very mixed.	All countries.	R. C., Meth., Cong'l.	Finest in the State.	$25 to $60	No sale.	None
28	8,000	Good society.	Few German and Norwegians.	Meth., Pr., Bap., R.C., E., C.	Good sch., Meth. Univ'y.	$15 to $30	¼ cash, 5 years or more.	None
29	12,000	Energetic.	British Isles, German, Scandin'n,	In every village.	All over.	$16 up.	3 to 5 years, part cash.	None
30	7,000		Irish, German, Scandinavian.	Meth., R.C., Luth., etc.	Yes.	$12 to $20	3 to 10 years.	None
31	5,000	Agr'l, good, industrio's	Scandinavian, Canada.	Luth., Presby'n, Epis'l.	Good, well taught.	$22 to $33	Buyer's owu time.	Yes
32	10,000		Very few.	Meth., Baptist, Cong'l.	100 in the county.	$25	Often 5 years, 7 to 10 per cent.	None
33	10,000		Few English and German.	Wesleyan, Methodist.	Yes.	Common, $20	2 to 4 years.	None
34	10,000		All nations.	Baptist, Meth., Cong'l.	Fine school.	$12 to $20	¼ cash, balance 3 to 10 years.	Yes
35	4,000		Few foreigners.	None.	School district.	Common, $10 to $12		Yes
36	14,000		German.	W. P., Cath., Bap., Con., Pr	Plenty.	$18 to $20	1 5th cash, bal. 6 yearly pay's.	Yes
37	4,000	Industrious, inteligent	A few Scandinavian.	Three.	Public schools.	$18	½ cash.	Yes
38		Intelligent, moral, in's.			Good.		Reasonable time, part cash.	..
39	5,000	Well to do.	Some few Swedes.	Meth., Cong'l.	Good graded.	$3 to $40	1 to 5 years, school lands long'r	Yes
40	4,000		Some Scandinavians.	Plenty.	Plenty.	$20	To suit.	..
41	7,000	Equal to aver'e, at least	Very few foreigners.	4 churches in the city.	High schools in city.	$5 to $30	1 to 10 years, 7 per cent.	Yes
42			All nations.	Pleuty.	Common and graded.	$15 to $30	15 p. c. cash, 7 p. c. 30 years.	Yes
43	23,000	Wide-awake, industri's	Very few foreigners.	9 white, 3 col'd—all demo's	1 in every 4 sections.	$22½ to $50.	Part cash, balance time.	None
44	3,000	Intelligent.	Few Irish and German.	5 Protestant.	First class.	$10 to 40	⅛ cash. long time.	None
45	10,000		Few German and Scandinavian.	All except Catholic.		$30 to $30	⅛ cash, balance 5 years.	None
46	4,000		Few.	Methodist and Christian.	Yes.	$15 to $30.	⅛ cash, 1 to 5 years.	None
47		Energetic, intelligent.	German, Norway, and Irish.	Cong'l, Meth.	Building every 2 miles.	$17 to $30	⅛ in 1 year.	Yes
48	80,000		All nations.	All denominations.	Pleuty.	Same as at Chicago.	1 to 5 years.	Yes
49	21,000	Jail empty, no saloons	Some German, Irish, Swedes.	All denominations.	Numerous.	Highest $35	⅛ cash, 2 years or more.	None
50	10,000	Above avg'e in educa'n	Bohem'n, Germ., Irish, Eng., Scot	All denominations.	70 in county.	$20 to $40	¼ cash, good terms.	Yes
51								Yes
52	12,000		Some German.	Meth., Christian.	Brick school in town.	$28	Plenty of time.	Yes
53	6,000	Thrifty.	German, Scandinavian.	Presby'n, Meth., Epis., R.C	Graded and district.	Common, $15	Cash.	None
54	10,000	Enterprising, cultured.	Every nation.	Meth., Cong'l, R. C., Epis.	Public school.	Native, $15 to $25	Cash or time.	None
55	4,000	Thrifty.	Germau, Scandinavian.	All denominations.	Every 2 miles.	$20	Any time.	None
56	15,000		Mostly German.	Almost all Prot denomin's	School almost every 2 m'ls	Hard, $10 to $12½	Reasonable time.	None
57	7,000		Few German and Swedes.	Presby'n and Baptist.	House worth $3,000.	$20 to $30	Part 5 years, 10 per cent.	Yes
58		Industrious farmers.	German. Norwegian.	2 next Spring.	Good district.	$17.	4, 6 years, 8 p. c. interest.	None
59	8,000	Good mining & ag'l l'nd	Mainly Welsh.	Bapt., Meth., Pr., Ep., Cath.	Public Coll. & Mich. Inst.	$20 to $50.	Yes.	Yes.
60	5,000		A few Irish and Bohemian.	Plenty.	Plenty.	$20 to $25.	5 years.	None
61	85,000	First class.	Mainly from Canada.	All leading denominations.	In every township.	$17 to $25.	3 to 5 years.	None
62	800,000		All nations.	131.	210.	$10.50 to $14. Com.	⅛ cash. 1 to 5 years.	Noue
63	29,741	Fair to good.	Mostly German.	Presbyterian, Methodist.	Coll. Gram. & Com. School.	$12 to $30.	2 to 6 years.	None
64	21,463	Agr'l and stock raising.			128 school houses.			..
65	5,600		Mainly Norwegians.	Plenty.	Good schools.			None
66				Methodist & Presbyterian.	First-class.		To suit buyer.	..
67	3,000	Best people of new c'ry	A few Germans and Swedes.	Pres., Bap., Meth., Luth.	A great many.	$18 up.	1 to 20 years.	None
68	6,000	Thrifty, intel't, prog'e.	Foreigners mostly Amercanized.	Meth., Bap., Pres., Cath.	Being built everywhere.	$13 to $28.	Not often.	None
69	15,000		German, Irish, and Austrian, etc.	Leading denominations.	Splendid free-sch. system.	$26 to $30.	Part cash, security for balance.	Plen.
70	7,000		Irish, Danish, German.	Meth., Pres., Cath, Bap., Lut.	Sch. everywhere. Good coll	$20 to $30.	Any time.	Yes.
71				Yes.	Yes.	$15, soft.	⅛ to ½ cash, bal. yearly pay'ts.	..
72	10,000	Very good.	Not much	Bap., Meth., and Camp serv.	All over county.	$25 to $40.	Time to suit.	None
73	17,000		Some Germans.	Pres., Meth., Cath., aud oth.	More than 100 Pub. Schools.	$12.50 to $17.50.	⅛ to ½ cash, bal. 1 to 5 years.	None
74	40,000	Enterprising & indus's.	Germau, some English and Irish.	All denominations.	Good graded schools.	$18.	Part on time, 6 p. c. interest.	None
75	well stt		Some foreigners.	Baptist, Congregational.	Many good schools.	$16 to $60.	⅛ cash, long time. Reas'ble int.	Lit'le
76	21,000		German, Swedish, Chinese.	11 denominations in City.	Best in the world.	$10 to $22.	⅛ cash, balance 3 to 5 years.	Yes.
77	2,000	Good.	German.	Bres., Bap., Meth., Prot.	Plenty.	$20 to $25.	10 years, or to suit buyer.	None
78	4,000	Moral, thrifty, intellig't	Every nation.		Edu'l int's on the up-grade.			..
79								..
80	2,000	Enterprising.	Scandanavian.	Meth., Cath. societies, Pres.	Public schools.	$14 to $22.	1 to 5 years.	None
81	7,000	Good.	Scandanavian, German, Canadian.	Ep., Bap., Meth., Cath., Luth.	Yes.	$14, common.	5 years.	Yes.
82	25,000	No better in U. S.	Canadian.	ME., Pres., Meth., Bap., Cath	All over.	$15 to $30.	To suit buyer.	None
83	10,000	Very best.	German, Scand., Bohemians, etc.	Pres., Meth., Cath, Bap., Lut.	Fine brick school house.	$30 up.	4 to 10 years, part cash.	Yes.
84	3,000		Norwegians, some Germans.	None.	Yes.	$18 to $45.	On short time.	None
85	1132 vot				30 public schools in county			Yes.
86	2,500		Few foreigners, Swedes.	None.	Public school.	$30.	1-10th down, ten years time.	Yes.
87	18,000	Good, law-abiding.	Irish, Scotch, German, Norweg.	Cath., Dun. Quak, Bap., M.E.	Very good in all parts.	$25.	½ down, bal. to suit. 8 p. c. int.	None
88	2,000	Best class.	Norwegians mainly.	Catholic, Baptist.	Graded school.	$20.	1 to 5 years with security.	Yes.
89	13,000		Very small.	Methodist and others.	Well supplied with schools.	$20.	7 or 8 years.	Noue
90		Law-abiding.	Mostly German.	Nearly all denominations.	Well established all over Co	$10 to $12.	10 years time.	Yes.
91			Small number Germans and Irish.	4 Protestant organizations	Good school house.		¼ cash, 1 to 3 y'rs, 8 to 10 p. c. int	None
92			German.	Christian and Methodist.	Good.	$25.	½ down, 3 to 5 years.	Yes.
93	40,000	Good.	Germ., Dan., Norw., Bohe. Eng, Ir.	Catholic.	Well supplied.	$14 to $25.	10 years.	Yes.
94	20,000	Good.	Mainly Swedish.	Covcn., Meth., Bap., Free-wl	Good district and high sch.	$18 to $22.	Partly on time.	None
95	1,200	Good.	Twenty per cent are Scandinavia's	Baptists.	Good schools all over Co.	$21.	½ cash, balance 1 to 3 years.	None
96	5,000		Scandina., Germans, Irish, French.	Cath., Ep., Me., Bap., Pr., L	Graded h'gh sch., Cath. Sem	Pine, $18 to $45.	Nonc.	6 y'rs
97	11,000		Chinese, Mexicans, Indians.	Con., in town, several in co	Good School.	$20 to $80.	1-5th cash, 5 yrs. 7 per cent int.	Yes.
98			Scandinavians and Germans.	No building in county.	Schools all over.	Common, $18 to $23.	Long time.	Yes.
99	5,000	Good.	Scand., Canad., Ger., Half-breeds.	Cath., Bap., Pr., Me., Evan.	Good sch. in each district.	Rough, $18.	1 to 5 years.	Noue
100	8,000		Scandinavians, Ger., Gt. Britain.	N'ly all denom., exce't Mor.	56 school districts.	$20.		7 yr's
101	5,000	Good.	Scandinavians.	In the towns.	Good schools.	$20.	Yes.	None
102		Peaceable and friendly.	No particular class.	All denominations.	Good schools.	$20.	Part cash, 8 p. c. interest.	None
103	16,000		Germans Norwegians, French.	1 ch., oth's h'ld scr., in s. h.	Five in township.	$14 to $19.	2 to 10 years.	Some
104			Germans, Swedes.	Quaker, Methodist, Pres.	Yes.	$20 to $40.	Yes.	None

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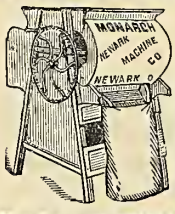


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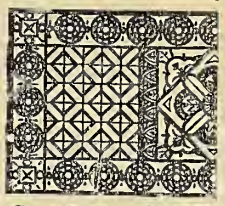
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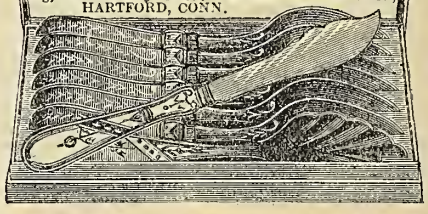
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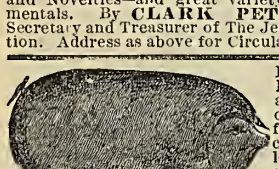


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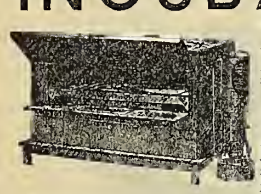
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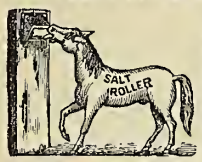


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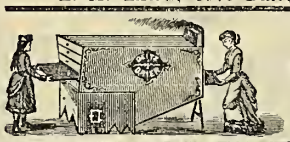
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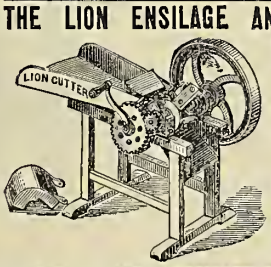


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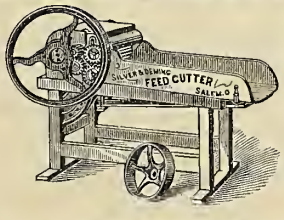


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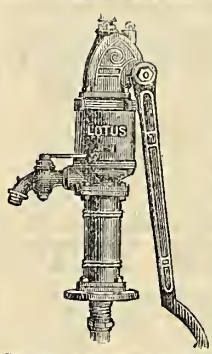
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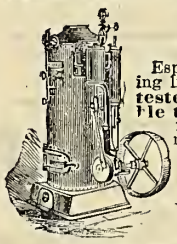
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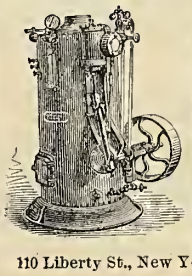
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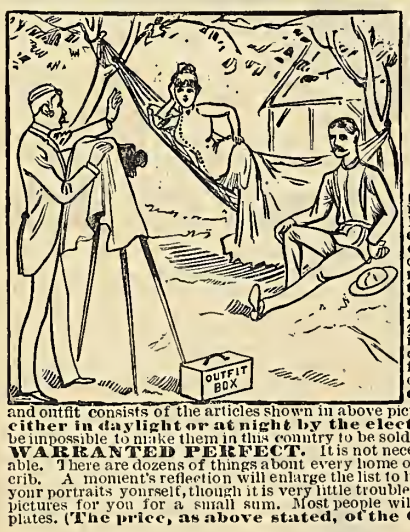


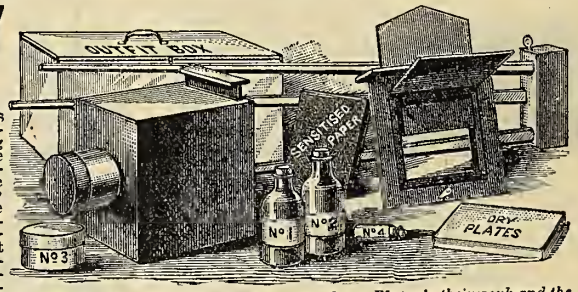
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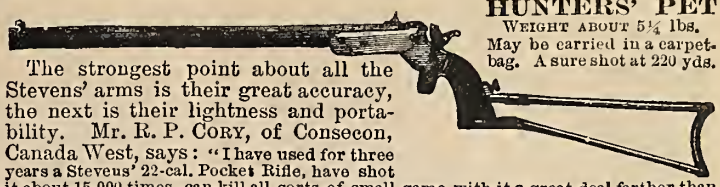
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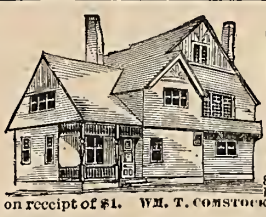
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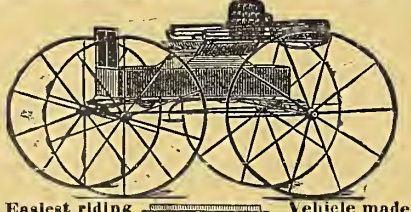
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FOR THE

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THE NEW OWNER GIVING HIS FIRST ORDERS.

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Contents of this Number.

Allen, A. B., Portrait of *Illustrated*.. 483
Among the Farmers *Illustrated*.. 498
Animals, Feeding and Care of Farm 495
Australia, Rabbit Trappers 5 *Illustrations*.. 490-1
Bacteria 498
Bee Notes for November *Illustrated*.. 493
Birds, Wholesale slaughter of 498
Bladderwort Destroying Fish *Illustrated*.. 502
Boulevard, A Garden *Illustrated*.. 492
Boys' and Girls' Columns:
A Living Head-dress 2 *Illustrations*.. 506
An Illustrated Numerical *Illustrated*.. 506
A Red-Letter Day 506
Boating and Canoeing as Recreations .. *Illustrated*.. 507
The Doctor's Talks *Illustrated*.. 508
Frogs by Day, and Frogs by Night .. 2 *Illustrations*.. 508
Bushel, What is a, of Indian Corn 492
Canaries, The Old and the New in ... 2 *Illustrations*.. 488
Cattle, Angus *Illustrated*.. 485
Chats with Readers 495
Chestnuts, Burless 501
Clod Crusher and Smoother, A *Illustrated*.. 500
Corn, Indian, What is a Bushel of? 492
Crops, What shall we do with the? 493
Ensilage, Sweet 498
Farming in Germany 9 *Illustrations*.. 496-7
Flues, Watch the 499
Fly, Teeth of a *Illustrated*.. 508
Fodder, Coarse, for Sheep or Cows 493
Forest Rubbish, Clear up 501
Fowls for Winter Laying 485
Fowls, Treating Diseased 490
Fowls, Which are the Best? 500
Front Yard, What shall be done with 4 *Illus*.. 503
Fruit without Flowers 4 *Illustrations*.. 489
Garden, Flower, and Lawn 483
Garden, Kitchen 483
Garden, Orchard and Fruit 483
Germany, Farm Life in 9 *Illustrations*.. 496-7
Greenhouse and Window Plants 483
Hay for Fuel, Preparing 7 *Illustrations*.. 499
Health, Relation of Plants to 503
Horses, Cross-bred 2 *Illustrations*.. 484
House, A, Costing $3,500 4 *Illustrations*. 494
Household.
Closet Door with Shelves for Toilet Articles .. *Illus*.. 504
Can't You Sleep? 504
Autumn Styles 504
Protecting Food from Ants, Flies, etc 2 *Illus*.. 504
Useful and Ornamental Household Articles .5 *Illus*.. 505
Catering for the Sick 505
Ice-House, Building an 495
Improvement, Where to Look for 483
Law for Farmers 490
Mailing Box for Plants 2 *Illustrations*.. 490
Notes From the Pines 499
Notes on Live Stock 482
Notes on the Road 510
November 482
Onions, Keeping 493
Owner, Arrival of the New—Giving Orders *Illus*.. 481
Ox Bot-Fly, The 2 *Illustrations*.. 493
Passage-ways, Convenient, in Fences 2 *Illus*.. 487
Pears, A New Race, The Orientals .. 2 *Illustrations*.. 501
Pigs, Wintering Young 487
Plant, A Fish Destroying *Illustrated*.. 502
Plants, Relation of, to Health 503
Plants, Watering 502
Pleuro-Pneumonia at the West 498
Posts, Stone and Iron Gate *Illustrated*.. 493
Poultry House, Is it Ready for Winter? 500
Proprietor, The New *Illustrated*.. 481
Rabbits in Australia 5 *Illustrations*.. 490-1
Raspberry, Another New, The Rancocas *Illus*.. 502
Rats in Poultry Houses—Head them Off 485
Saddle, Bare-back versus Blanket *Illustrated*.. 487
Screen, A Universal *Illustrated*.. 489
Sheep, Hold on to the 487
Shelters, Cheap for Swine 499
Shorthorn, A Superior *Illustrated*.. 500
Sphagnum, What is? *Illustrated*.. 503
Towns, Improving, and Villages *Illustrated*.. 492
Trellis, Fastening the Wires of a *Illustrated*.. 495
Underdraining in Winter 487
Villages, Planning and Improving *Illustrated*.. 492
Visit to the Founder and First Editor 509
Walks and Talks on the Farm 486
Wagon Jack, A *Illustrated*. 500
Wheelbarrow, A Spring *Illustrated*.. 490
Work for the Month 482

For Editorial Correspondence, Chats with Readers, Humbug Exposures, Book Reviews, and other interesting matter, see page 509 and pages which follow.

November.

"The mellow year is hasting to its close;
The little birds have almost sung their last,
Their small notes twitter in the dreary blast—
That shrill-piped harbinger of early snows."

HARTLEY COLERIDGE.

Friends, Greeting!

One and All!!!

The American Agriculturist Family Cyclopædia presented to *every* Subscriber of the *American Agriculturist*—new or old, whose subscription for 1885 is forwarded together with $1.50, and 15 cents extra for postage, before December 1st, is giving the greatest satisfaction. The features of the book are fully described on page 452, of the October Supplement (Premium List). When the Cyclopædias are delivered here at the office, the Subscribers save the 15 cents for packing and postage. We take great pleasure in presenting this Cyclopædia to every Subscriber, not because the *American Agriculturist* is not richly worth five times the subscription price, but because it is a valuable acquisition to any home, and may persuade very many not now subscribers, to become such. Furthermore, old Subscribers will not feel inclined to complain that they are not remembered by us in common with the new subscribers.

Every Subscriber to this Journal, every Club Raiser, every Canvasser, and every Exchange Newspaper, will please immediately turn to page 518, for information of interest and value to one and all.

A Wonderful Journal.

Hon. Henry Smith, of Albany, Ex-speaker of the New York Legislature, one of the foremost lawyers of this State, and an old subscriber of the *American Agriculturist*, writes us from his farm, under date of September 28th: "Your October number is a miracle; how you can furnish such a publication at that price is wonderful. I should think that every one who can read, would take it." We propose that each succeeding number shall surpass the previous.

Birthday and Holiday Gifts.

The magnificent Premium List which accompanied the October number, affords an opportunity for all of our readers, old and young, to procure presents for their friends without money and with but little labor. You can *now* secure and forward us the necessary number of subscribers to entitle you to any premiums which you may desire for yourself or to use as presents for the coming holidays.

Arrival of the New Owner.

After remaining in the family for three generations or more, the old Homestead has finally passed into the hands of a new owner. A young city man, yielding to the growing taste for country life, has purchased the broad acres, made his first appearance, and is now telling the hired men what he wishes to be done over there. See preceding page.



There is nothing to be gained and much to be lost by getting behindhand with farm work. This is true of all seasons of the year, but it is specially true in the autumn. The days are getting shorter and shorter, and the weather more uncertain. Hire a little extra help, if need be, get started early in the morning, and make a short nooning. It grows dark early in the evening. Corn stubble intended for oats or barley in the spring, can often be plowed to better advantage in the fall than in the spring. If it is good, strong land that you wish to plow an inch deeper than hitherto, the fall is the better time to do the work. The new, raw soil will be mellowed by the frosts of winter, and will crumble to pieces in the spring. You should put three horses to the plow and make thorough work. If you have not time to plow, or the soil is so light that you prefer to let it remain unplowed until spring, it is a good plan to harrow down the cornstalk stubs and make the field ready to plow the first thing in spring, and so with the potato ground, get the stems out of the way this fall, either by drawing them home, burning them, or spreading them on the land. An hour's work now will often save two hours or more in the spring.

Live Stock Notes.

There will soon be a daily out-go of fodder, and the problem of winter feeding, and care of live stock, is to so govern this expenditure, that the best returns may be obtained. All the farm animals should be in good flesh and health upon the opening of winter. If these conditions are continued, the stock are well kept, and will not come out "spring poor" at the end of the winter. Manure is not to be overlooked in the winter system of farm management. Farmers, more than ever before, must feed for manure, and husband it when obtained. An abundance of wholesome food, plenty of pure water, warm, dry quarters, and sufficient fresh air, are four of the leading essentials in wintering farm stock. It does not follow from this, that the animals must be kept in the stable, or under the shed at all times. Frequent exercise in the open yard is profitable when the weather is suitable. Keep the work horses busy in the field preparing for the coming spring, and feed them well with a variety of food. A few chopped apples serve as an appetizer. Colts need to be pushed in their growth with rich food and good care. Cows taken up from grass, need a mixture of hay, corn-fodder, and meal—all they will eat up clean, or else the flow of milk will greatly decrease. One-third of a cow's allowance is not too much for a calf. Sheep may be the last stock to go into winter quarters. Keep only thrifty sheep through until spring. Fattening pigs should now be growing rapidly. Grain is low and meat is high, therefore convert the former into the latter. There are many things that will add to the comfort and convenience of caring for live stock in winter. Provide ample feeding room for all animals. Place the feed racks, etc., where most convenient.

Orchard and Fruit Garden.

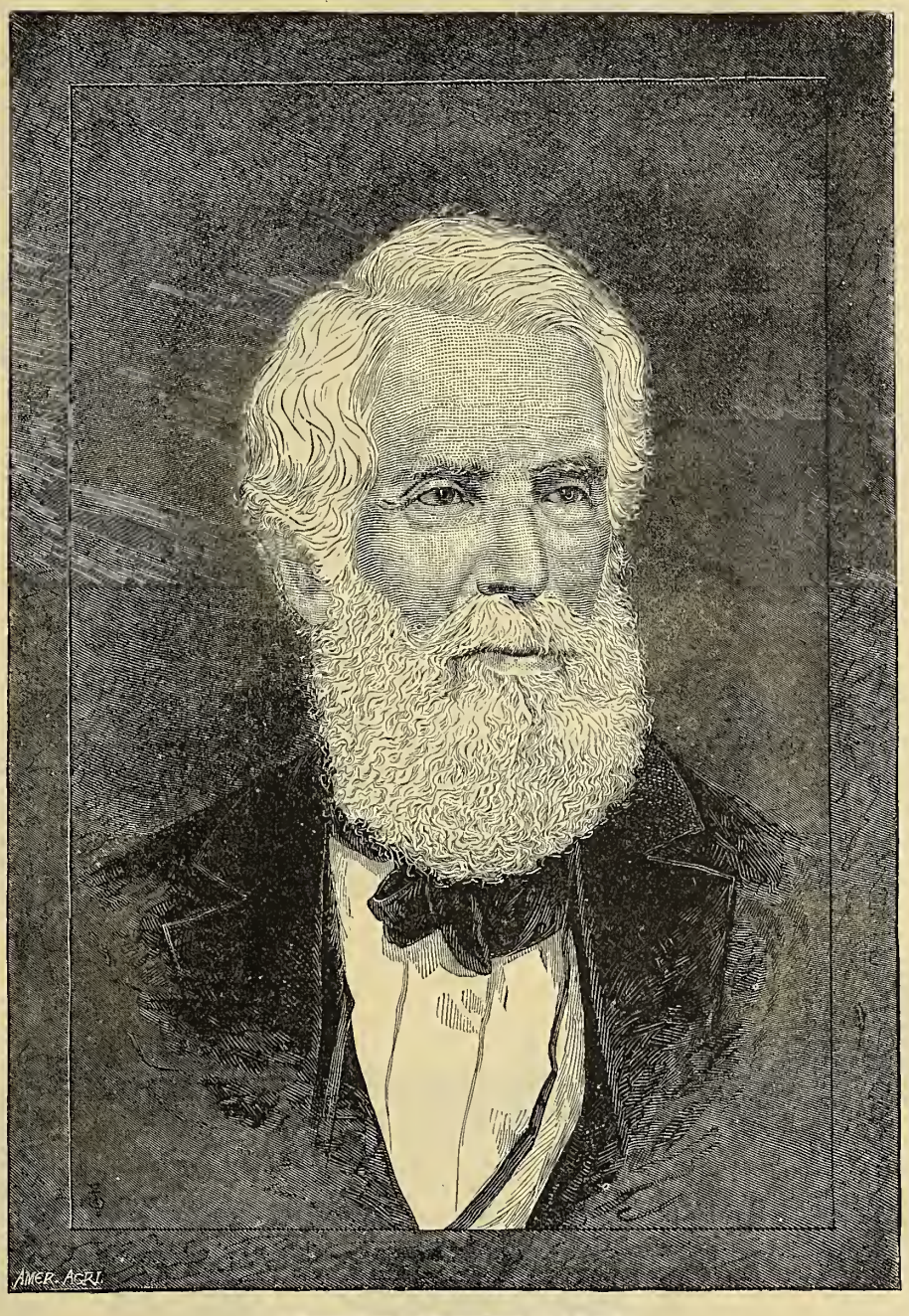
Trees and fruit-bearing shrubs may still be planted, provided the weather remains mild. If the conditions are unfavorable, heel-in the trees, being careful to cover the roots well with soil, for spring planting....Young trees, planted this fall and last spring, should have a steep mound of earth, about a foot high at their base, to enable them to resist the winds and to keep off mice.... Rabbits are repelled by rubbing the trunks with bloody meat or sprinkling with blood. They are at their best this month, and a stew or pie of fat, young rabbits, is a luxury to be procured by paying the boys a premium on those they trap.... Make a record of all trees planted now or recently; noting the number of the row and the place of each tree in the row is much more reliable than any label....Look to gates and fences, and make all secure.....Keep fruit as cool as possible without freezing; open the cellar or fruit house when the weather allows....The best cider is made in cool weather, when fermentation can go on slowly. If for vinegar, it may be made at any time....Prune grapes, currants, and gooseberries soon after the leaves fall. If more plants are needed, make cuttings; they may be planted at once, covering them with straw or litter, or tied in bundles, labelled, and buried in a dry place.... Cions may be cut and packed in saw-dust in the cellar.... Strawberry beds should be covered when the surface freezes, using straw, swale hay, leaves, or cornstalks, covering the plants but slightly, and the soil between them more heavily. Leaves may be kept in place by laying on light brush, or sprinkling soil upon them.

Kitchen Garden.

Beets and carrots should not be exposed to hard frosts; parsnips and salsify are better for freezing and thawing. Roots of all kinds may be stored in trenches or in small quantities in boxes or barrels in the cellar, covering them with earth.... Celery is to be stored in trenches a foot wide, and deep enough to receive the plants, or in a cool cellar in long boxes, nine inches wide and as deep as the plants are tall, placing earth on the bottom of the boxes.....Cabbages are set on the ground, roots up, and covered with earth. For a supply of parsley in winter, take up the roots, plant them in a box of soil which is to be set in the kitchen window....Plants of cabbage, cauliflower, and lettuce for early spring planting, should be pricked out into cold frames. Do not cover the frames with their sashes until freezing weather.

Flower Garden and Lawn.

All improvements, such as new borders, walks, and drives, can be better done now than in spring Leave a good length of grass on the lawn to protect the roots. Top dress with good compost or ashes; nitrate of soda, and other commercial fertilizers, are best applied in spring....Plant ornamental trees and shrubs if the weather is mild. Collect leaves from the lawn and road-side, and store under cover or in heaps with boards laid over them Plant hardy bulbs if any are left out....Hardy young trees are helped by protection the first winter; evergreen boughs placed around them are better than bundling with straw....Have snow-plows ready for cleaning walks and drives....Half hardy and tender plants should be taken to the cellar before they are injured by freezing.



ANTHONY BENEZET ALLEN,

FOUNDER AND FIRST EDITOR OF THE AMERICAN AGRICULTURIST.

The engraving of Mr. Allen, which our artists have just executed for this Journal, will be recognized as wonderfully natural and life-like by his friends and admirers. An exceedingly entertaining account of his visit to Mr. Allen during the last week of last September, is given on page 509 by Dr. George Thurber, who for nearly a quarter of a century has held the position of Editor-in-Chief of the *American Agriculturist*. The labors of these two gentlemen in promoting and developing agriculture, are coming to be recognized in every farmer's home, notwithstanding that the modesty, which always accompanies true worth and merit, has caused them to shrink from publicity. — PUBLISHERS OF THE AMERICAN AGRICULTURIST.

Greenhouse and Window Plants.

Plants that have been out of doors through the summer, need a gradual change to confined air and heated rooms....Begin the fight with insects on their first appearance. Green-fly, red-spider, and mealy-bug, are most common. Use tobacco smoke or tobacco water for the first, a frequent showering of the leaves on the under side for the red-spider, and for mealy-bugs, pick off with a pointed stick, or touch with a small brush dipped in alcohol.... In watering, wait until the plants show that they need it, then give it copiously. Hanging-baskets are best watered by plunging them into a pail of water.

Where to Look for Improvement.

In wheat, barley, oats, Indian corn, buckwheat, peas, beans, potatoes, apples, pears, peaches, apricots, plums, nectarines, quinces, currants, gooseberries, raspberries, strawberries, melons, squashes and cucumbers, we must look to new varieties for improvement. But in the case of cabbage, cauliflower, beets, celery, turnips, carrots, parsnips, onions, salsify, etc., we should look to careful and judicious selection rather than to new varieties. Take turnips as an illustration. The turnip naturally runs to seed the first year. But we now grow it, not for the seed, but for its root. We have converted the plant from an annual to a biennial. We sow the seed in the spring or summer, raise a crop of turnips with the desired large, nutritious, well-formed roots. We select the best of these roots and set them out the following spring, and in June or July get a crop of seed. The care with which we select these roots to be set out for seed, determines largely the value of the subsequent crop. If, instead of sowing seed from carefully selected and transplanted roots, we should sow turnips very early in the spring, and let such as might do so go to seed, and if we gathered this seed, and sowed it again early next spring, we would have a far greater number of plants that would run to seed, and even those which did not actually produce seed, would have a tendency in this direction. They would have long necks, and miserably poor, small roots. And if we set out these long-necked turnips for seed, we should probably get a big crop of turnip seed, but from such seed, what kind of turnips should we be likely to get? The same remarks will apply to cabbage, beets, carrots, parsnips, etc. We do not object to new varieties. In fact, we give them a hearty welcome. But a new and really valuable variety might be ruined in a very few years, if proper care is not exercised in selecting the plants. With potatoes the case is different. We do not raise potatoes from seed. We grow them as we do apples from the bud. If we want a better apple, we get a better variety. If we want a better potato, we must get a better variety. If we want better cabbage, beets, turnips, carrots, onions, etc., our surest way of getting them is to be careful in the selection of those we set out for seed. Our cultivated plants, especially those valued for their roots, are in an unnatural condition. Their size has been increased by high cultivation and careful selection of the best specimens for bearing the seed.

Cross-bred Horses.

The improvement in American horses within a few years has been very marked. Heavy draft-horses were rare in New York twenty years ago. One saw in our city streets few horses weighing over twelve hundred pounds. Our vehicles were adapted to light horses, and expressmen and truckmen had to carry light loads and go the oftener. It is not to be wondered at that foreigners, especially English, Scotch, Dutch, and French, sadly missed the grand draft-horses of their own countries. Finally our horse-breeders waked up to a sense of the situation. A few French horses and Clydes were imported, and it was found that even with mares of moderate size, as a rule, excellent results were obtained, many of the cross-bred horses exhibiting an apparent improvement upon their sires, having great substance and muscular power combined with a grace of action and style not possessed by their more ponderous progenitors. There is a great deal of good blood in American horses, and in a violent cross like that with the Percheron or the Clyde, the blood in the mare often asserts itself in refining the points of the draft-horse, reducing the heavy limbs and clumsy fetlocks of the Clydesdale, lightening the neck and bringing up the sloping rump of the Percheron.

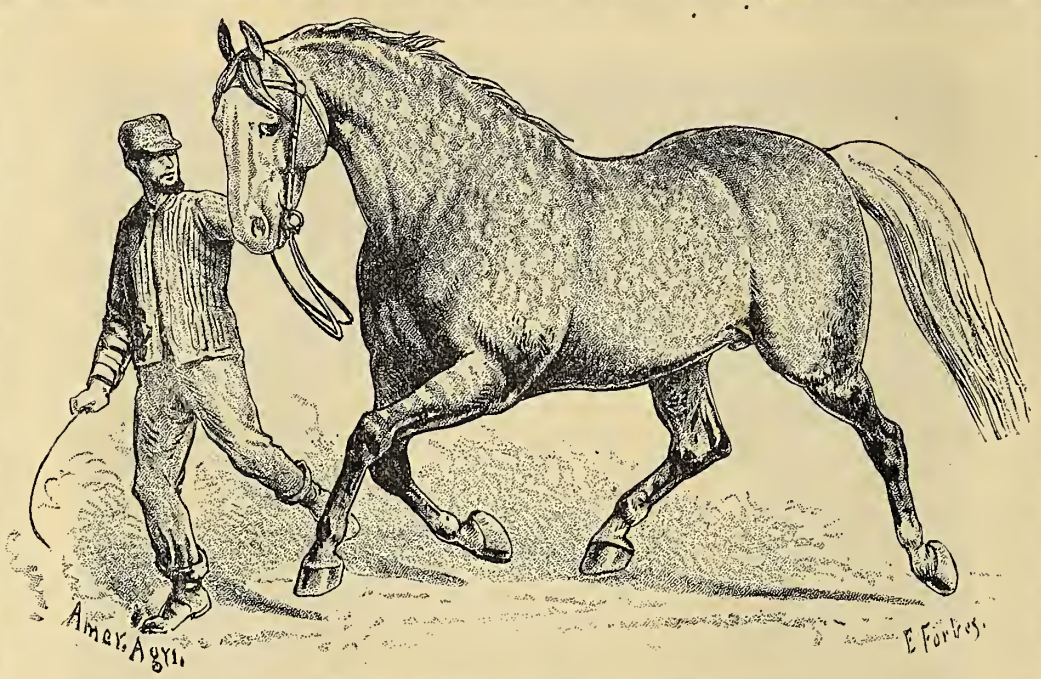


Fig. 1.—A HALF-BRED PERCHERON HORSE.

Drawn (by Forbes) and Engraved for the American Agriculturist.

Our eastern cities have, so to speak, consumed an immense number of horses of this general character, chiefly geldings of course, for the half-bred mares have been kept upon the farm, and now-a-days, being bred back to the same style of horse as their own sires, are giving us a noble class of useful horses, which are becoming a striking feature of New York and Boston, at least, and no doubt in a less degree of other American cities. The express business has increased, as we all know, to enormous proportions; the companies are rich and use many horses. It is indispensable to them to have good horses, and the pride of proprietors and employees is to have handsome ones, which, with their neat wagons and excellent harness — as showy as strict adaptation to business will allow, make very handsome and imposing "turn-outs." They require horses for quick draft, active, above medium weight, good walkers, and capable of trotting off now and then at a rattling pace. They do not want all large horses, and it is quite important that though heavy they should trot easily. It is not strange then that among the fine express horses we see many having half or two-thirds Percheron blood. They have many of the points of the full-bloods—not infrequently are of a dappled-gray color, short coupled, with sloping shoulders, straight backs, neat, well-shaped heads, great breadth of chest, loin, and rump; fine, flat legs, clean and free from hair, and feet hard, round, and sound as any one could desire. They are willing and powerful pullers, rarely, if by true Percheron sires, showing any defect like spavin or ring-bone. With a natural tendency to trot on the sire's side, and this in no way decreased by the qualities inherited from their dams, it is not to be wondered at that those horses, though weighing sometimes as much as fifteen to sixteen hundred pounds, should be capable of taking an easy if not a rapid trot, even with a load. We present an engraving of a fine horse, showing off this valuable quality, not a fancy sketch, but a portrait of one of the type of which we write, and weighing about twelve hundred pounds. The picture of the horse standing still represents a fine, half-bred Clyde gelding, contrasting strongly with the Percheron half-blood in length of body, but otherwise showing less distinctly the prevailing differences of style. The shoulders are straighter, the legs flatter and more hairy, and the head more or less delicate in proportion. Such horses are adapted usually to slower motion, heavier draft, yet active, and capable of taking a trot if pushed. They average a good deal heavier than the true Percheron half-breeds, and even than those of the Norman cross, which, as is well known, is a heavier and coarser French breed, which has been largely imported on account of the difficulty of obtaining the full-blooded Percherons. There is, among the grades, much difference in weight, and the style is greatly modified by the dam, so that not a few of the Clyde cross are stylish enough for coach horses, and resemble not a little that fine English breed, the Cleveland Bays, while others are heavy, and slow-moving, ponderous, and powerful—qualities which fit them for the heaviest draft purposes. Hence these find employment in moving safes, heavy timber, granite blocks, and other massive building stones, iron beams, pillars, trusses, and the like. In color, these Clyde horses are of a bright bay or brown, often dappled, frequently having one or more white feet, and in many respects remind one strongly of their sires. They are great favorites, have usually excellent feet and legs, which are clean and free from puffs or bony enlargements, but generally hairy about the fetlocks. The shoulder is more upright, and better adapted to a dead pull and heavy draft.

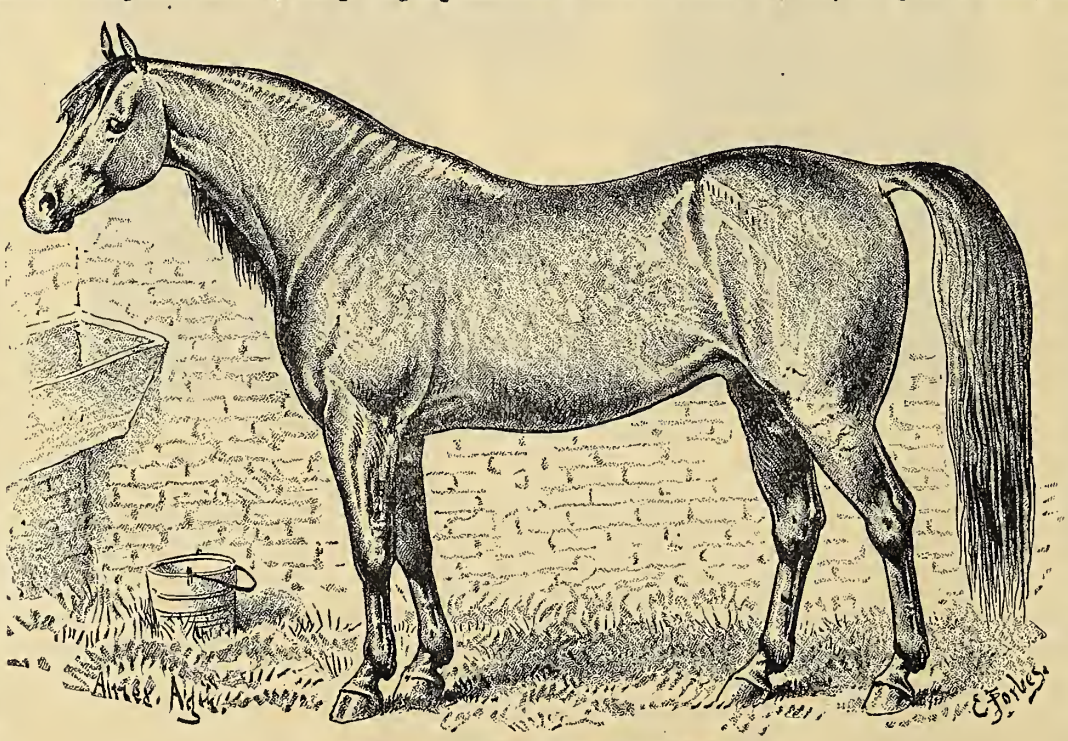


Fig. 2.—A HALF-BRED CLYDESDALE HORSE.

Drawn (by Forbes) and Engraved for the American Agriculturist.

It really matters little which of these two excellent breeds is selected by farmers to breed their large, well-formed mares to. They must, however, be sure that the horse is pure-bred — either imported, or with a verified pedigree. The mere fact of importation is no proof that the horse is really good, but it is very strong presumptive evidence that he is pure, for few men would be so foolish as to be at the trouble and expense of importing a low-bred horse for breeding purposes. It is just as poor policy for any stock raiser to breed from half-bred horses, as it is from half-bred bulls, though the bad results are more immediately obvious in the case of neat cattle. Another point—if after a few years you have

some fine half-breed mares, kept to take the places of their dams as workers and breeders on the farm, breed them either to horses of the same breed as their sires, or to thoroughbreds, or to fine, long-pedigreed trotting stock. The market is our safest guide in breeding. Fashions change slowly, and a really first-class article is always salable.

The cross made by breeding half or three-quarter breed "Percheron-Norman" mares to Clyde horses results very favorably. Some of the best heavy draft horses in this city have thus the combined blood of these two grand breeds. In them the sound, well-shaped, hard feet of the Percheron carry the heavy bodies of the muscular, broad-chested Clyde, with their large-jointed flat legs, while they take after their dams in being short coupled, with moderately sloping shoulders and fine action.

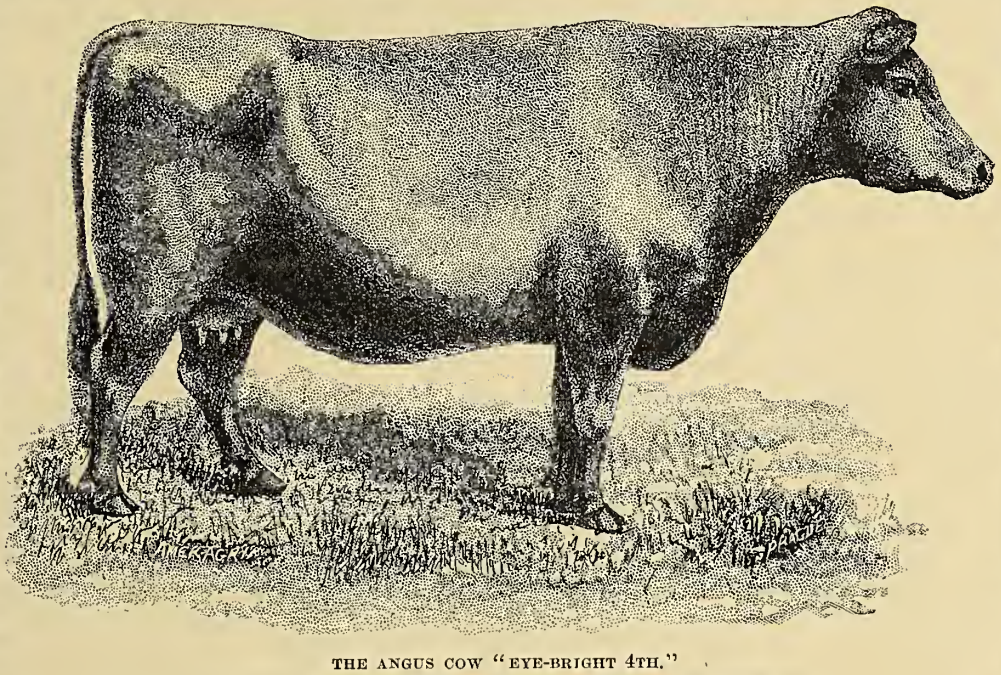
The raising of these draft horses, if by good sires, is profitable, those weighing fourteen hundred to sixteen hundred pounds bring three hundred dollars in the market at five years old. The demand is so great now that we suppose it would be quite impossible for a dealer to pick up a car load from first hands in any part of the country within a radius of fifty miles. The reason for this is that yearlings, and two and three-year-olds, are largely bought up from the western breeders, and sold to go still further west among the pioneers, who raise them and use them for breeding purposes.

The farmer who undertakes to supply this insatiable market, must be on his guard. There have been hundreds of veritable brutes imported. Pure-blooded they may be, but they are not good. The supply of first-class horses of either French, Scotch, or English "shire" blood is limited, and the demand here is so great that the importers in many cases have brought out anything that would sell. So we have stallions standing all over the country who only, as it were by accident, ever get a decent foal. Still, even these "great, ungainly, gaunt, and awkward" half-bloods, bring a pretty good price. Their sale cannot, however, be depended upon, and the only safe policy is to breed from first-class sires.

RATS IN POULTRY HOUSES.—HEAD THEM OFF.—The loss by rats is much greater than most poultry keepers are aware; they steal eggs and chicks, and rob the fowls of their food. It may be prevented, in part, by a well-trained ferret or two, and a couple of good rat-catching dogs will soon clean out the rats, if these, their natural enemies, are properly used. As these are not always available, the next best thing is poisoning the rats. In using poison, it must be remembered that it is no respecter of persons, and will be as deadly with children, with poultry, dogs, cats and other animals, as it will with the rats. The utmost care must be exercised in its use, and the only time it should be set where the rats can get at it, is at evening, placing it where nothing else can reach it. Early next morning, remove all the poisoned bits of bread or meat to a secure place, and replace them next evening. Two or three "treats" of this kind, two or three times yearly, will completely rid the premises of rats. The phosphorous poisons are generally to be preferred, as they are more enticing to the rats than any other kind we know of. It does not pay to tolerate these sources of annoyance and destruction. Poison the rats.

Angus Cattle.

The Angus, or as it is called, the "Aberdeen-Angus" breed, is one of the most useful and attractive breeds of beef cattle. It originated in the eastern part of Scotland, in what are termed the Lowlands, among the wide-awake breeders of beef cattle for the English markets. Prominent among whom it is pleasant to notice the name of Hugh Watson, often recurring in the pedigrees of some of the best families. He was the father of the late William Watson of New York, and Westchester County, famous as an importer and breeder of Ayrshire cattle, whose sons still show the family trait of fondness for live stock, and success as breeders. The breed has not been long fixed, yet polled cattle have been numerous in this part of Scotland for nearly two hundred years, and probably longer. It was not until the interest in breeding and improving neat cattle became general among intelligent landholders and breeders, that this breed began to be developed as a distinct and valuable class of cattle. This chiefly occurred after the year 1825, and since about that time to the present, the Angus breed of cattle has gone steadily on gaining as well in merit as in public favor.



THE ANGUS COW "EYE-BRIGHT 4TH."

Drawn (by Sprague) and Engraved for the American Agriculturist.

Ever since the multiplication of those wretched brutes of more or less Spanish blood, the Texas cattle, whose long horns and intractable dispositions make them dangerous as well to one another as to their herdsmen, Agricultural writers—among them Mr. A. B. Allen, and Col. Weld, have urged the use of Scottish polled bulls, so that the cattle of the Plains might gradually be disarmed and rendered more docile and more useful. "Line upon line," and "precept upon precept" were not uttered in vain; finally Mr. George Grant imported some fine Angus bulls in 1873, which we had the pleasure of seeing in New York. They were taken with a lot of Shorthorns to his "colony," at Victoria, Kansas, and gave the first practical demonstration of the great value of Angus grades—the cows as breeders and the steers for beef. Since then there have been a great many importations. There is an Angus herd book started, but the first volume is not yet issued, and the breed is daily growing in popularity. It should be borne in mind that this is preëminently a beef breed, and that as such all the valuable beef points have been, and are cultivated, forming the criterions of excellence. Every butcher and drover knows what there are, and every breeder ought to know as well—but they do not. The breeders are no doubt more familiar with well-shaped animals, and with good handlers and quick-feeders too, than the butchers and drovers are, and yet they lack, as a rule, that quick discernment which is a professional accomplishment with the latter class of men, and which would be almost invaluable to them in improving their herds. The essential characteristics of the breed are: First, a lack of horns, or even buttons, nubbins, or scurs, by which names the little misshapen bits of horny substance are called, which occasionally occur even in pure herds. They are of frequent occurrence among grades, which indeed often have small horns. The buttons or scurs have no bony attachment, but hang by the skin alone, and no doubt indicate a not very remote horned ancestor. Second, a black color with little or no white, the less the better. The occurrence of other color than black-brindle, red, etc., is regarded as a disqualification in a breeding animal, and yet a slight shade of brown is sometimes admissible we believe. That is, the black is not necessarily, though always preferably a true black, but it may shade to brown. Third, a symmetry, which in Angus cattle, and in fact in all the polled breeds is essentially different from that of the Shorthorn, which is generally taken as the highest type of a beef animal. It, however, more nearly approaches that of the Hereford and Devon, which occupy a scarcely lower position to the Shorthorn as typical beef breeds. Angus cattle are long, level, low set, on fine limbs with small bones and fine heads and tails. They have, however, more roundness of outline, are not so square, and well blocked out as the Shorthorn, neither is there the same tendency to the deposition of fat in lumps upon the rump and sides. They are of large size, or rather of great weight, and in this respect disappointing, for they are generally much heavier than they look; are good handlers, have soft, furry unctuous coats, are quick feeders, and come early to maturity, thus forming a breed possessed of really superlative characteristics in many respects, which can hardly be too highly recommended. The grades are generally hornless, and in other respects take after their polled sires. They may be closer packed in railway cars for transportation, and from their quietness and inability to injure or worry one another with horns, they are moved with less danger and much less shrinkage. We present, as an illustration to this article, the portrait of the excellent four-year-old Angus cow "Eye-bright 4th," owned by the Kansas State Agricultural College. She was bred by the Ontario Experimental Farm, her dam, "Eye-bright 2nd," was imported, as was also her sire, "Gladiolus" (1161), bred by the Earl of Fife.

FOWLS FOR WINTER LAYING. — Eggs bring a much higher price in winter than in summer, and all who keep poultry would like to have winter layers; yet many of us think we can get them without paying the price. We do not mean the first cost, but the care and continued good management which they must have to enable them to lay plenty of eggs when these are scarce in the markets. For winter egg-production, there is nothing better, as a start, than extra early hatched pullets, not much matter what the breed, so the surroundings and conditions are what they should be. Some breeders make good winter layers out of the White Leghorns, while others fail to do so, on account of their having such large combs, which are readily frosted. We select birds with very moderate or small combs, to prevent the possibility of injury from a sudden and severe change in the weather.

Walks and Talks on the Farm.

New Series.—No. 5.

JOSEPH HARRIS, M. S.

An English gentleman who came over in the "Oregon" in less than six and a half days, was looking at my Northern Spy apples. "If you would put them in small pails" he said, "and send them to Liverpool, I could sell them for you at a good price. People do not want to buy a whole barrel at a time. But they would gladly buy a pailful. Your barrels are worth little or nothing after the fruit is out, but the pails would be worth with us more than they cost you here. I saw a pail to-day used for shipping tobacco that is just the thing."

"I am afraid it would not work," said the Deacon. "The apples would have to be pressed, just as we now press them in the barrels, and in such small packages the proportion of apples injured in pressing would be much greater than in barrels of the present size. And besides they tell us that our Western New York apples will not sell in England because we use barrels that do not hold quite as many quarts as flour barrels."

"They must be great duffers" said the Englishman. "Our apple crop is a failure this year, and your apples will be wanted. We have had the grandest crop of strawberries this year I ever knew, and they sold as low as a penny a quart. We have not learned how to get them to market in as convenient packages as you use. Your agricultural papers have done great things for American farmers and fruit-growers in many ways, not least in recommending more attention to the methods of marketing."

"That is true," said I, "and while at first thought, I was inclined to agree with the Deacon, that we could not use small pails for shipping apples, I am not sure that the plan will not work. We could avoid the crushing the Deacon speaks of by using a false-head for pressing down the apples. This false-head could be covered on the inside with some soft, elastic material that would not bruise the apples in pressing. We could fill the pail, as we now fill the barrel. Put on this false-head with the soft lining, press the apples down firm, and then take off the pressure, remove the false-head, and put on the regular wooden head and nail it down or use a hinge strap to hold it in place."

"But," said the Deacon, "could they be sent on the cars and steamers?"—"Why not," said the Englishman, "you send your lard over in pails, and I do not see why you cannot send apples. And, as I said before, people would buy them because they are easily handled, and because the pails would be useful after the fruit was removed."

"Do you use our American beef?" asked the Deacon, "and how does it compare with the English?"—"It is the best beef in the world," said my English friend, "but I do not buy it. If I should order American beef my servants would not touch it. I have no doubt our butcher sends it to us occasionally, but he claims to sell only English beef."—"That proves two things," said the Doctor, "first, that prejudice is strong, and second, that the beef, after its long journey, is sometimes strong also. How best to get our cattle and sheep to Europe is still an open question. I am not sure that the better way will not be to send our store steers and store sheep, and let them be fattened in England. Cattle have been carried by steamer from Boston to Liverpool for five dollars each."—"The English market," said I, "is worthy of some consideration, but our own markets are of ten thousand times more consequence to American farmers. Nine-tenths of the beef eaten at my table comes from the West. Our butchers buy the cattle in Buffalo, and I am not sure, quality considered, that I do not pay more for beef, here on the farm, than it is sold for in Liverpool. Our meat has greatly improved during the last twenty years, but much of it is still far from what it should be. Poor meat is a costly article."—"Yes," said my English friend, "judging by the prices you pay for things over here, I conclude you must all be millionaires."

"Wheat," said the Deacon, "is only worth eighty-five cents a bushel to-day, and the millers are not anxious to buy."—"They won't get my wheat at that price," said the Squire. "One thing is certain, wages must come down or wheat go up."

"There were several hundred steerage passengers," said my English friend, "on the 'Oregon,' who paid only fifteen dollars each and found. They went to church at Queenstown on Sunday morning, and the next Saturday night were in New York, and it would seem in such circumstances that, as the Squire says, wages must come down nearer the English level. But such will not be the case as long as everything is so dear here."

My English friend said not a word about free-trade, but it was easy to see what he was driving at. "The argument," said I, "may apply to married men with families, but take a young man who can get two hundred dollars a year, including board, washing and mending, how do our high prices for some things affect him? If he smokes cigars, and attends every pic nic and dance in the neighborhood, and drives a horse and buggy, and wears shoddy clothes and bogus jewelry, he might as well be on the other side of the water. But if he will act like a man, he can save money enough in a few years to buy a small farm. And in spite of what the Squire says, this country needs more such men, and is prepared to give them a cordial welcome. Mark my word, wages are not going to be much lower here, and notwithstanding the low price of wheat this year, farmers are not all going to the poor-house. Life goes on. Work will not cease. People will eat and drink and wear clothes and travel and read; they will need doctors and lawyers and parsons and school-teachers as much now as ever. Let us be more hopeful, and stick to the work that our hands find to do. Happy is the man who knows his work and does it."

"What we want," said the Doctor, "is not lower wages, but more intelligent workmen. The best men are the cheapest. Our wheat-growers need not be afraid of competition with the cheap labor of India. The right kind of agriculture is going to be more profitable than it has ever been. It will require more capital and more brains, and I am happy to believe that capital is yearly becoming cheaper and brains more abundant."—"They are both pretty scarce in these diggings," said the Deacon, "and those who have interest to pay, find it no easy matter to get the money."—"That is true," said I, "interest is a great tyrant."

"Potatoes ought to be a profitable crop with you," said my English friend. "A farmer told me yesterday, in Rochester, that he got fifty cents a bushel for them."—"Yes," I said, "I heard him tell you so, and I presume he told the truth. But he always gets about ten cents a bushel above the market price. He has fine, sandy land, and takes great pains with the crop, and has a regular set of customers, who pay him an extra price, because they know he always has the best potatoes. He has grown rich at the business."—"If it pays to use superphosphate on wheat at eighty cents a bushel," said my English visitor, "it ought to pay you to use it on potatoes at fifty cents. It is quite as easy with us to grow four hundred bushels of potatoes per acre, as forty bushels of wheat."—"Perhaps so," I said, "but when I was in England, in 1879, the heaviest crop of potatoes on the experimental plots at Rothamsted, was only one hundred and thirty-nine bushels per acre, and on the unmanured plot only thirty and one-third bushels per acre, and of these only twenty-one bushels were 'good.' Nine bushels were 'small'."—"I suppose the crop was injured by drouth," said the Deacon.—"It certainly was not drouth," I said, "it was more likely to be drowning. The real cause, however, in my judgment, was a lack of sunshine. The land was clean, and the potatoes looked healthy, but there was no vigorous growth such as we see here in our bright American sunshine. On plots dressed with nitrate of soda and ammonia salts, the vines were of a very dark green color.—'Too much nitrogen,' said Dr. Gilbert. Doubtless that is the proper view to take of it, but I should have said 'too little phosphate and too little sun.'"

Taking the first five years of the experiments, 1876–1880, the average yield from the plot without manure of any kind, was (calling fifty-six pounds a bushel) ninety-three bushels per acre. With three hundred and ninety-two pounds of superphosphate, the average yield was one hundred and forty-seven bushels per acre. With three hundred and ninety-two pounds of superphosphate, and an ample supply of potash, soda, and magnesia in addition, the average yield was a little less than one hundred and fifty-two bushels per acre. With fourteen tons of barn-yard manure per acre, the yield was one hundred and eighty-seven bushels per acre. With fourteen tons of barnyard manure, and three hundred and ninety-two pounds of superphosphate, the yield was two hundred and twelve and one-half bushels per acre. With fourteen tons of barnyard manure and three hundred and ninety-two pounds of superphosphate, and five hundred and fifty pounds of nitrate of soda, the yield was two hundred and sixty-nine bushels per acre. With five hundred and fifty pounds of nitrate of soda, three hundred and ninety-two pounds of superphosphate, an ample supply of potash, soda, and magnesia, but no barn-yard manure, the yield was two hundred and ninety-three bushels per acre.

"It would seem from this," said the Doctor, "that we could use superphosphate on potatoes with considerable profit. When used alone, it gave an average increase of fifty-four bushels per acre. When used with barnyard manure it gave an average increase of twenty-five and a half bushels per acre. What we should like to know is, how much increase it produced when used with nitrate of soda; but the experiment was not made."—"I can't understand what you are talking about," said the Deacon, "place the figures side by side."—"The Deacon is right," said I, "and while the Doctor makes the table, let me say that these experiments on potatoes at Rothamsted were commenced in 1876. Potatoes have been planted on the same land every year since, and the same manures are used every year unless otherwise stated. The field looked to me as not specially well suited to potatoes. It was good, strong, loamy land, full of flint-stones. Here we should prefer lighter land if we had it, and if not, we should want to plow under some clover or manure to lighten up the soil. The land was kept scrupulously clean, and the plots beautifully laid out. There is an idea in this section that we shall ruin our land by using superphosphate. It is thought the land will get 'hard' and that we must plow under clover or rye or straw or buckwheat or manure to lighten it. So far as mechanical condition is concerned, these experiments at Rothamsted do not seem to confirm this idea. If the potatoes have food enough, they can dispense with the mechanical effect of the barnyard manure."—"I am glad to hear you say that," said the Doctor, "for I heard you say the other day that you believed you had made a mistake in not growing more clover, and you are growing rye to plow under to lighten the land."—"Never mind that," said I, "we are talking about the results at Rothamsted, where there is no guess-work."—"The first year of the experiments," said the Doctor, "the yield was as follows:

	BUSH.
No manure	154
Superphosphate alone	242
Superphosphate and potash, etc.	247
" " " }	342
And nitrate of soda	
Nitrate of soda alone	154

The average yield per acre of the first five years, was as follows:

No manure	93
Nitrate of soda alone	128
Superphosphate alone	147
" and potash, etc.	152
" " " }	293
And nitrate of soda	
Superphosphate and nitrate	Not tried.

The next year, 1881, or the sixth crop in succession on the same land, the yield was as follows:

No manure	81¼
Nitrate of soda alone	127½
Superphosphate alone	223
" and potash, etc.	237
" " " }	400
And nitrate of soda	
Fourteen tons of barnyard manure	320

In 1882, the seventh crop in succession, the potato yield on the experimental plots was as follows:

No manure	78
Nitrate of soda alone	83½
Superphosphate alone	191½
Superphosphate, potash, etc.	180
" " " and nitrate of soda	289½

Last year, 1883, the results were as follows:

No manure	104
Nitrate of soda alone	125
Superphosphate alone	199
Superphosphate, potash, etc.	198
" " " and nitrate of soda	325½

"From the results," said the Doctor, "it is quite clear that we can use superphosphate on potatoes with considerable profit."—"There can be no doubt about it," I said, "especially if the land is in good condition; for instance, if it is a good clover or grass sod, which, on decomposition, furnishes the nitrates, potash, etc. The superphosphate alone would have a greater effect than in the above experiment, where the potatoes are planted year after year on the same land."—"Your method," said the Deacon, "of applying superphosphate to potatoes, is a good one, and ought to be generally known to American farmers."

The method which the Deacon alludes to is a very simple one, and is practised, I presume, by by many others. We mark out the land in rows thirty-five inches apart, and drill in the superphosphate in these rows with our grain drill, and then drop the potatoes in the row about fifteen inches apart. The English farmers plant potatoes closer than we do. In the Rothamsted experiment, the rows were twenty-five inches apart, and the sets dropped twelve to fourteen inches apart in the rows.

"Our farmers," said the Doctor, "are applying superphosphate to the corn in the same way. The best field of corn I have seen this year was drilled in with a grain drill in rows forty-two inches apart. The drill has a fertilizer attachment. No marking out was required. The seed and phosphate were sown at one operation, at the rate of ten acres or more a day."—"Yes," said I, "the plan is an excellent one. I know the field you allude to. It was sown early, and kept very clean by the frequent use of the cultivator. The corn is remarkably well eared, and was cut September 8–12—the earliest in the neighborhood. The old-fashioned method of planting by hand in hills, 'must go'."—"So must I," said the Deacon, and he left. He has strenuously opposed the plan of drilling in corn for years. And he is right, unless other improved methods are adopted at the same time—such as early planting, thorough cultivation, and the use of superphosphate in the drill. The superphosphate hastens the maturity of the corn crop.

Wintering Young Pigs.

Pigs born later than the first of October will need good care and skillful management to keep them in a thrifty, growing condition through the winter. This is particularly the case if you keep them in large numbers, and it is a good plan to sell all you can before winter sets in. People who keep only two or three pigs to eat up the slops from the house can handle their late pigs to better advantage than the large farmer or breeder. Such young pigs need milk, greasy water, or broth and bread, or cooked potatoes, with corn meal pudding; these are more likely to be liberally furnished from the kitchen when you have only two pet pigs than when you have two score or two hundred. Whatever method of feeding is adopted, let it be liberal. Let them have all the good feed they will eat—no more, no less. Let them have good, dry, comfortable quarters to sleep in, and disturb them as little as possible. Pigs are in part hibernating animals. The more they sleep the better for them and their owner. We do not want to fatten pigs in winter. We simply want to keep them in healthy, growing condition, and the fatter they are when winter sets in, the easier it will be to carry them through the winter. Pigs well wintered, are in good condition to thrive well on grass and clover next summer. They will do far better on pasture alone than young spring pigs. We are not now advocating having young pigs come in the autumn, but if you have them and cannot sell them, or do not wish to, then take the best of care of them, and feed liberally. The most profitable pork we have ever made, was from young pigs which had been well cared for through the previous winter, and the next summer fattened on clover pasture.

Convenient Passage-Ways in Fences.

H. L. C., Strafford Co., N. H., sends us a sketch and description of his cattle way. When, he writes, we bought our farm, there was a common set of bars at the barn-yard, and one also at the entrance to the pasture. These bars being wider than needed for admitting any team or vehicle, we set an extra post three feet from one of the fence posts, with slat and pin for holding the bars in place. By sliding the bars far enough to allow the cattle to pass through, we avoid the trouble of dropping the bars, and of stooping to raise them into place again. The boards are less likely to get broken by the feet of the animals. Figure 1 represents the upper bars nearly open, and the lower one closed. We have frequent occasion to cross, on foot, a lot where the boards of the fence are too near together to pass between them. We took off the middle board, pinned one end loosely to one of the posts, and placed a fastener or catch on the other post, as shown in figure 2. In passing, we drop one end of the board, step through, and return the board to its place, with but little effort or delay, as illustrated in the engraving given above.

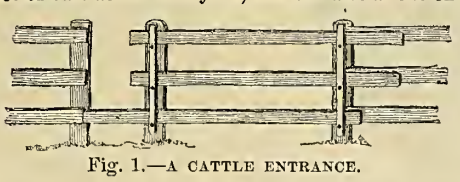


Fig. 1.—A CATTLE ENTRANCE.



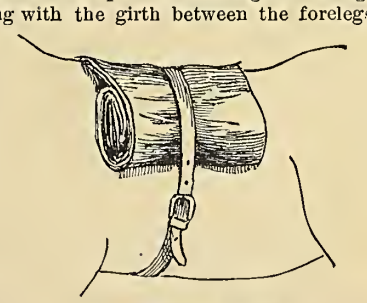
Fig. 2.—A LOOSE BOARD.

Underdraining in Winter.

Even when the thermometer was below zero, we have successfully and easily dug and laid tile drains. Two things are necessary; we must make our arrangements before winter sets in, and the tiles must be laid every day as fast as the underdrain is completed. It is usual to finish digging the drain before commencing to lay the tile. We dig from the outlet up into the field to be drained, and when the ditch is finished, we commence laying the tiles at the upper end of the drain, and work backwards, laying tile after tile, until we reach the outlet. When draining in winter, we cannot do this. We commence at the outlet, dig a few rods of drain, and lay the tiles, and cover them up. It comes a little awkward at first to an old ditcher, and some care, sense, good judgment, and pluck are necessary. But the work can be done, and done well. We speak from experience. If you find water in the land, and the outlet below is free, there need be no fear of laying the tiles too deep or too shallow. The water will give you the true level. All you have to do is to cut the drain so that the water will pass off through the tiles below. If the land is nearly on a dead level, and you are anxious to get every inch of fall, you can cut the drain so that the water, before the pipes are laid, will stand in it nearly an inch deep. If horse-shoe tiles are used, this is not necessary, but with pipes you must allow for the thickness of the pipe at the bottom of the drain. We said it is necessary to make preparations before winter sets in. In the first place, make up your mind just where the drains are to be cut, and stick stakes. Then commence at the outlet, and with a good three-horse team plow two furrows at least two yards apart on each side of the proposed drain, and keep plowing, turning haw at the end, until the whole is plowed, and you have a good, deep, dead-furrow in the centre where the drain is to be cut. If it is stubble land, it is a good plan to plow this strip two or three times over, turning the furrows away from the centre every time. In this way you can break up the land where the drain is to be at least eighteen inches deep. The loose earth will fall back again into the centre, but if it does not, keep plowing until you have at least eight inches of loose earth on the surface of the land where the drain is to be cut. The object of this plowing is not merely to lessen the labor of digging, but to furnish a mass of loose soil that will not freeze. To accomplish this object, the work must be thoroughly done. The earlier you plow in the autumn, the better, but the final plowing should be just before winter sets in, or better still, after there is an inch or so of frozen crust on the previously plowed land. A couple of men following the plow, will pull on one side, with potato hooks, large chuncks of frozen earth, and thus enable you to plow deeper in the centre where the drain is to be. In the winter, even when the rest of the field is bare, there will probably be snow in this deep, dead-furrow, and when it is shovelled off you will find loose earth beneath, or at worst, only a slight crust of frozen earth that can be easily broken up.

Bare-back versus Blanket Saddle.

As a boy I could throw myself on a horse, and with a withe-bridle go almost anywhere, across ditches, over fences, etc., and rarely thought whether the horse was fat or lean, or high or low withered. I do not remember ever being much troubled by the chine of the back-bone. But now I need a saddle. There were two of us to ride the other day, and only one saddle; so a saddle had to be improvised. I remembered that the cavalrymen used to fold a blanket so as to make a comfortable seat. I tried my hand, and I think hit it the first time. The horse was far from fat. The blanket was first folded narrow and smooth, about fourteen inches wide; the exact middle marked, and the ends rolled rather tightly to the centre. This rolled blanket was laid rolls down upon the back of the horse, one roll being on each side of the back bone, as shown in the engraving. A saddle-cloth, a sack, or a blanket may be laid over it, and strapped on with a good, strong surcingle. This furnishes a broad, level, easy seat. To make the saddle complete, a leather girth is needed with stirrup straps, and stirrups attached; also a breast strap, made of a piece of surcingle webbing, connecting with the girth between the forelegs, and having its ends sewed together and attached to the girth at the withers by a buckle, or by two short straps and buckles on each side. A back strap and crupper may be buckled by the girth. This makes a safe boy's saddle, which would be hard to beat for comfort or safety while riding. W.



AN IMPROVISED SADDLE.

HOLD ON TO THE SHEEP.—The depressing tendency of the wool market is apt to influence many sheep-raisers to get rid of their flocks at any price and go out of the business. We believe those who do this will miss it. Every business has its low tide, but it will surely rise again, and they who hold on to their sheep will be gainers in the end. The farmer or stock raiser should not be fickle.

The Old and the New in Canaries.

The wild canary, as shown in figure 1, is found in Southern Africa, and many islands of the Atlantic Ocean. It is stated on good authority that these birds found their way to the Canary Islands

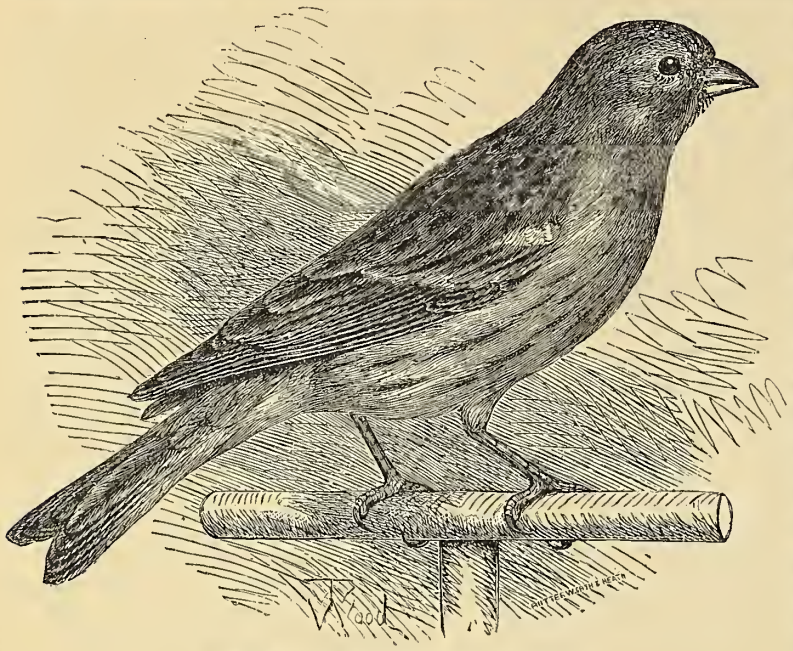


Fig. 1.—THE ORIGINAL WILD CANARY.

Engraved for the American Agriculturist.

by accident—being set at liberty from a foundered ship bound for Leghorn. The genial climate of the new home proved well suited to the island-bound canaries, and they became thoroughly acclimated. From these islands, whose name they now bear, the beautiful songsters have been carried to all parts of the civilized world, and are esteemed as household pets by all classes, from the humblest cottager, to the queen in her palace. The common canary is a handsome bird, varying in color from yellow to buff and green, and is often variegated.

Under domestication, and the guiding minds of breeders, several distinct varieties of canaries have been produced. Among these, the Belgian, the Glasgow Don, Manchester Coppy, Yorkshire Fancy, Cinnamon, Lizard, and London Fancy, are leading types. Much attention in recent years has been given to the Crested Canaries, and a short time ago a new variety was originated by crossing the true type of Norwich Canaries, with the Lancashire Coppies. This Modern Crested Norwich Canary is shown in figure 2. The changes which have taken place in the production of this household pet, are indeed striking, as seen by comparing the original canary in figure 1, with the recent product of skillful breeding, shown in figure 2. The modern canary is full in the body and head, deep and broad-chested, short in the legs, wide across the shoulders, and with a moderately short tail. The crest is the most attractive and important feature, which is shield-shaped, wider at the back than at the front.

What shall we do with the Crops?

A distinguished bank officer and financier asked us to-day the above question. He thought the country, and in fact the whole world, was groaning under a load of agricultural produce, for which there was no present or prospective demand. Do not be alarmed, we said, we are better off than we were last year. Farmers are hopeful and are busily at work, confident that as long as people must eat, the products of their labor will be wanted. Let us be thankful for good crops. They are a great blessing. We know that low prices entail suffering and disappointment on individual producers. This is true of farmers and manufacturers alike, but the farmer has this great advantage, he can live to a large extent on the products of his own farm, and he knows that the world cannot live a single week without wheat and other soil products.

"That is all very well and very true," he remarked, "but I do not see what can be done with the present large surplus of wheat?"—In the first place, we said, the surplus is probably exaggerated. At this season of the year, when the wheat is in the farmers' hands, there are more "Bears" than "Bulls." They wish to get prices down as low as possible, and many of the papers teem with articles calculated to induce farmers to accept any offer made them for their produce. Even admitting that there is a large wheat crop all over the world, it must also be remembered that prices are extremely low—far below the cost of production and reasonable profit, and it is a well known fact that low prices greatly increase consumption. When prices are high we get along with as little as possible, we are careful to waste nothing. Now, if the bread is not just what we like, it goes into the swill-tub. If we cut a larger slice than we eat, no matter, bread is cheap. If a favorite dog looks at you while eating, you do not hesitate to share with him. If the cook does not object to the extra baking, you do not care if the pigs or the chickens, the ducks, the geese, or the turkeys, get more or less bread. On the writer's farm we have a large lot of poultry that are fed by the juvenile members of the household, and fed so liberally that they will not look at rye or common screenings. Nothing but Gold Medal Wheat, or the best Clawson, suits their fancy, and they are to-day getting, without serious protest, all they will eat of it. If wheat was one dollar and fifty cents per bushel, not a kernel would they get.

In addition to the bread and wheat which the pigs and poultry get incidently as a result of cheapness, there are many places where wheat will be purposely, and as a matter of convenience and economy, fed to stock of all kinds. There is very little old corn in the country, and wheat is taking its place. This condition of things exists more or less throughout the world. Wheat is very cheap, beef, mutton, pork, butter, and cheese, are high, and there is no law, human or divine, against converting the low priced article into the high priced article. If it will pay the thing will be done. As a rule it does not pay to raise wheat to feed animals, we can get cheaper food. But if, once in a century or decade, wheat falls so low that it can be more profitably and more conveniently disposed of in this way, wheat will become the staff of life for man and beast alike. We have as yet scarcely touched the wheat of the past harvest. The world eats a good deal of bread every day, and there are three hundred and sixty-five days till the same time next year, when, if the harvest of 1885 is as early as it was this year, we may hope for more. Until then we must live on the present supply, and happy should the world be to know there is no deficiency.

In all sober seriousness, what is there in the situation to call out such doleful prognostications of impending disaster? If the crops were poor should we be richer? Wall street may have cause for fears, speculators may come to grief, railroads may lose money, but the agricultural interests of the country are, on the whole, safe and prosperous. Let us be thankful for the abundant grain crops.

Keeping Onions.

The great point in keeping onions through the winter is to get them dry and keep them dry and cool. A damp, warm cellar is one of the worst places. If you do not want to use them until spring, a good place is to put them in a dry barn or loft, and cover them over with straw or hay a foot or more thick, and let them freeze and stay frozen until they thaw of their own accord. They should not be handled while frozen, unless you wish to use them immediately. We have kept onion sets by mixing them with dry malt-sprouts, say not less than one bushel of sprouts to a bushel of sets. We placed a layer of sprouts two inches deep at the bottom of a large bin, and then a layer of sets four inches deep, and then two inches of sprouts, and so on until the bin was full, when we placed a foot or so of sprouts on top. The bin was in a hay loft, where it was exposed to frost. In the spring the sets came out in the most perfect condition—none decayed and none sprouted. Coarse, dry bran, would answer the same purpose. We once threw a quantity of onions by the side of a row of evergreens, and covered them with straw thick enough to keep them dry. They remained there all winter and came out in good order in the spring. A good plan is to keep the onions in slatted boxes holding a bushel or less. Place these boxes in the cellar on shelves, or raised a few inches from the ground, and with spaces between the boxes for air to circulate.



Fig. 2.—THE MODERN CRESTED NORWICH CANARY.

Engraved for the American Agriculturist.

Fruit Without Flowers.

A fruit is defined as the ripened pistil of a flower, and whatever remains attached to it. Perhaps no more exact definition than this could be given. There are, however, bodies occasionally produced, which have the sensible qualities popularly regarded as belonging to fruits, such as juiciness sweetness, taste, and odor, yet are not the ripened pistil, or any other part of a flower. Mr. E. A. Carriere, of the "Jardin des Plantes," has brought together in a recent "Revue Horticole" (Paris), several instances of the production of fruit-like bodies, which were not preceded by flowers, and we reproduce four of his illustrations. These cases have an interest to all who observe the phenomena of plant life, as they show that a mass of vegetable tissue may develop qualities often belonging to the ripened pistil, and the parts attached to it. We have a marked illustration of this in the strawberry, in which the end of the flower stalk becomes edible, though this is really a part of the flower. Figure 1 represents the stem of an apple, in which a bud had been inserted in the ordinary manner at *A*. An irregular growth took place from the wound, and a mass of cellular tissue produced. A skin was formed upon the surface of this, and in time it became of a yellow color, juicy, with the flavor, and even the perfume of a fruit. In another apple tree, figure 2, what might have been a bud, developed into a body somewhat like a fruit in form, but attached by its side. This, when it attained its growth, had all the sensible qualities of a fruit. Figure 3 shows growths that appeared on a Napolcon pear tree. These were adherent

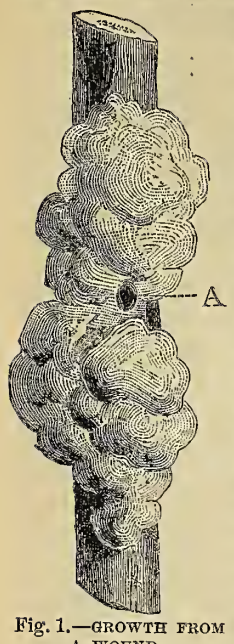


Fig. 1.—GROWTH FROM A WOUND.



Fig. 3.—FLESHY GROWTH.

to the wood, and each terminated by a leaf. They were fleshy and homogeneous, and though green and insipid at first, they became yellow in time, and acquired the peculiar flavor and odor of the Napoleon pear in a marked degree. The Poire Guillaume, or Williams, of the French, is our widely known Bartlett. Figure 4 represents the peculiar development of a leaf bud upon a tree of this variety. This, to some degree, is fruit-like in form, and adherent to a twig for part of its length. Some undeveloped leaves at the upper end, and other leaves at the sides, indicate its real nature, namely that of a stem. The flesh and taste of this growth were exactly like those of the Bartlett.

Notes From the Pines.

My little vineyard was planted some eighteen years ago. It contains about fifty varieties. I selected the kinds that were held in the highest esteem at the time, and others because I wished to know more about them. The soil on which they stand is very poor and sandy, yet with an occasional dressing of fine bone, the growth and crop are very satisfactory. The newer varieties that have since appeared, have been planted elsewhere.

WHAT IS THE BEST GRAPE?

If asked what is the best grape of the fifty odd varieties, I should unhesitatingly say the Alvey.



Fig. 2.—A PECULIAR "FRUIT."

That is the best fruit, without reference to anything else. It is to my taste as near perfection as I hope to meet with. Would I advise planting it? Not at all. The crop is never large, sometimes fails altogether, and the bunches are small and irregular. In every other respect, save in the supreme quality of the fruit—when you get it, the variety is altogether unsatisfactory. Next in quality I class the Iona. What great expectations there were when this was introduced! Yet who plants it now? My one plant has always given a fair crop, and the fruit is of the very highest quality; it would no doubt please the majority better than the Alvey. Israella, the former companion of the Iona, proved utterly worthless with me, and I am glad it died. On the other hand, Eumelan, which we seldom hear of now, is here one of the most reliable and satisfactory of all the varieties. It bears abundantly, has a good bunch, and is of excellent quality. When it can have a long enough season to become perfect, it gets very black, but it is eatable when the berries are only reddish-purple.

WHICH IS YOUR EARLIEST GRAPE?

In point of earliness, the Creveling takes the lead, and the fruit is of satisfactory quality. But it never makes a good bunch. Those who care nothing for appearances, and do not mind ragged clusters, will be pleased with the Creveling. Following close upon it, comes the Adirondack, another variety that appears to have been forgotten. It is, with me, a grape of much merit. Almost as early is Lindley, a red Rogers' Hybrid, which is a very sweet grape, and a favorite with many. Barry and Wilder are two of Rogers' black grapes. Both have every good quality that is claimed for the Concord, are of vastly better quality, and unlike that variety they keep well. They do well generally, and it is strange they are not more planted. They are much better for "the million" than the Concord. The Salem, another of Rogers' has been much praised. With me it has done nothing until this year, when it has a small crop. Lady does well here; it is a very handsome white fruit of good quality. One bunch of it is worth a bushel of Martha. Croton is another white grape

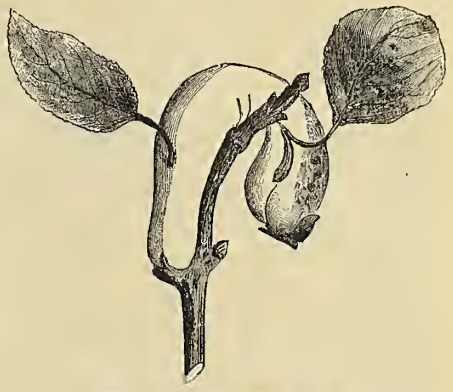
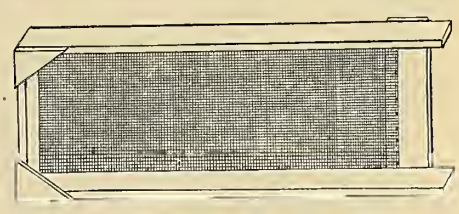


Fig. 4.—A STRANGE PEAR.

which makes a long loose bunch. The quality excellent, and when the mildew is not too much for it, a good bearer. Among the grapes the berries of which are too small to be popular, and the mildew is especially fond of, is the Elsingburgh. It illustrates the adage, "the best things are in the smallest parcels." Some one who described the berries as "little bags of wine," made a happy hit. It is a most welcome fruit when it ripens well. The Herbemont, smaller yet, is too late. I keep the vine just for its beauty of foliage. The same with the Taylor, one of the most rampant of all growers. If one wishes a vine for shelter, or to cover a screen, let him plant the Taylor. I have before mentioned that the Ives, so generally successful elsewhere, had never borne a ripe cluster here. It is the same this year, not a berry of the whole crop that is not shrivelled, cracked, and utterly worthless. Among the grapes that one now seldom meets with is the Hine. It resembles the Delaware in many respects, but has a somewhat larger berry, and to my taste is preferable, as it has not the cloying sweetness of that variety. It is an excellent amateur grape. THE PINES.

A Universal Screen.

The engraving represents a wire screen for sifting sand, coal ashes, soil and peat, for compost and any similar purpose. The frame is of two inch pine planks, six inches wide and six feet long, the cross piece at the top being three feet long, or as long as the wire cloth requires. The corners are stayed by corner pieces, or by an inch board nailed across the top. The woven wire is attached by staples before the bottom cross-piece is nailed on. The wires should not be closer than two to the inch—that is, half an inch apart, including the thickness of one wire, and it is well to use the galvanized wire-cloth. In use this screen



A SCREEN FOR MANY USES.

may be set against a building, or braced up so as to stand by itself. It is often convenient to set it up in a sled or wagon body, so that the coarse stuff shall fall out over the tail-board, while the fine material, sand, loam, peat, or what-not, may fall inside the box. In unloading potatoes, if the screen is hooked or fastened to the back of the wagon; the potatoes may be shoveled out quite rapidly, and the dirt will all sift through. The one we have had a long time in use has paid for itself over and over again, and been employed in many and varied ways not now remembered by us.

A German Mailing Box for Plants.

We reproduce for the *American Agriculturist*, engravings from the "Gardener's Chronicle" (Eng.), of a box used by Germans in mailing plants. The box consists of two pieces of pasteboard, which are dipped in hot water and brought into the form shown in the engraving, by shaping upon a mold.

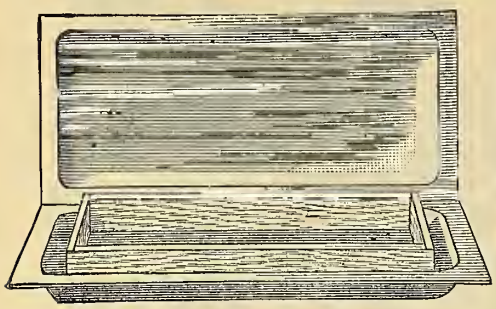


Fig. 1.—MAILING BOX OPEN.

Within the box is a loose frame made of four pieces of thin stuff, fastened together at the corners (fig. 1). The plant is placed within the frame, and the halves of the box tied together by a string. We would suggest that the box might be greatly improved by giving its interior a coat of shellac



Fig. 2.—MAILING BOX CLOSED.

varnish. This would not only make the box stiffer, but by rendering it air tight and non-absorbent of moisture, would greatly aid in preserving the plants it contained. Figure 2 shows the box closed.

Law for Farmers.

THE FARMER'S LIABILITY TO HIS HIRED MEN.—In a former article the law regulating the relation of master and servant, so far as applicable to the hiring of farm hands, was briefly stated. We now consider the obligations of the farmer to hired men, which are independent of the contract of hiring.

THE EMPLOYER'S DUTIES.—There are certain general duties of a master to his men, which, if not faithfully performed, render the master liable for the injury resulting to the men from such failure: 1. To exercise due care in the hiring and retention of employees. 2. To exercise due care in the purchasing and retention of machinery. 3. To exercise due care in keeping his buildings and premises in safe and proper condition. 4. To exercise due care not to expose his men to other than the ordinary risks of the business for which they hired. These general duties of the last group fall naturally under the following heads:

INJURIES BY CARELESS FELLOW-WORKMEN.—One of the risks which a workman assumes when he engages in any employment, is that which arises from carelessness on the part of his fellow-workmen. If two farm hands, both presumably competent, are set to work together, and one carelessly injures the other, the injured workman has no claim therefor upon the master. But if the master failed in the first duty above set forth, *i. e.*, if he hired a man whom he knew to be incompetent, or if he did not exercise due care to ascertain that the man was competent, then he, the master, would be liable for injury suffered through such incompetence by another workman, without fault on the part of the latter. To illustrate: Suppose a farmer hires a careless boy, and sets him to driving a spirited team; if the boy by his carelessness allows the team to run away and injure another workman, the farmer will be liable. He has here failed in his duty to exercise proper care in the selection of his employees. But if he had used the caution of an ordinarily prudent man in selecting a person competent to drive the team, and the man so selected had still proved careless and allowed the team to run away and injure a workman, the master would be relieved from liability for the damage done.

INJURIES BY DEFECTIVE MACHINERY, BUILDINGS, ETC.—The second and third duties of the master require him to exercise care in the purchase and retention of machinery, and in keeping his buildings and premises in a safe condition. If he fails in these duties, and such failure results in injury to a workman without negligence on the workman's part, the master is liable for the damage done. But here it must be observed that if the defects in the machinery or buildings are open and perfectly apparent to the workman, so that by the exercise of care on his part he can avoid the dangers arising from them, he cannot recover damages if he is injured in consequence. By engaging in the employment he voluntarily encounters the dangers which he can see, and, by prudence, avoid. Many of the defects, however, in machinery and buildings, are of an unseen and latent character, and not apparent to the ordinary observer. The servant does not, and cannot be expected to investigate at every step to know that he is treading on safe ground. If he is injured by reason of such a defect, and the defect is known, or ought to be known to the employer; that is, if ordinary care and prudence on his part would have discovered the defect, the master is liable. This is well illustrated by a case in New York, where a portion of a mill fell because the timbers and supports under it were allowed to become defective. The Court held that ordinary care on the part of the owner required him to find out such defects and remedy them, and that failure of this duty rendered him liable to the injured operatives (24 N. Y., 410). Where latent defects are known to the servant, and he calls the master's attention to them, and the master promises to repair them, that is sufficient for the servant. He may then continue at the work, and if he is injured the master will be liable (106 Mass., 282).

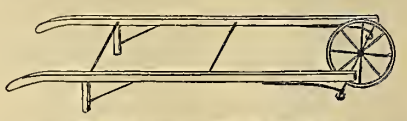
RISKS NOT INCIDENT TO THE EMPLOYMENT.—As has been stated, when a man engages in any kind of business he voluntarily assumes all the ordinary risks and dangers incident to that business. Thus a sailor takes the chances of wind and wave, a miner the risk of being choked by fire-damp, a builder that of falling from the scaffold, or a painter the chances of getting the painter's colic. All these ordinary risks are presumed to have been considered in making the contract of hiring and the compensation to have been arranged accordingly. If an injury results from one of them to the workman, it can only be regarded as an accident, and the misfortune must follow him (28 Vt., 59). But the employee does not undertake to run any risks not incident to the employment for which hired; and if he is put to other work, and is there injured without fault on his part, the master is liable. To illustrate: Suppose a farmer hires a man to work on a farm; the man after working for a time on the farm is, without any new contract, put to work in a saw-mill which the farmer also owns. Not being used to the work, he is injured by one of the risks incident to the latter employment, the farmer will be liable for the damages caused by the injury. It is true the man could have refused to work in the mill when requested to do so; but his primary duty was obedience, and he undertook no additional risk by obeying the master's orders.

Treating Diseased Fowls.

In nine cases out of ten, and often in the tenth case also, an axe properly applied, with the aid of a chopping block, is the best medicine that can be given a diseased fowl, and it prevents that one from spreading contagion. Unless the bird or birds are very valuable, it seldom pays to doctor them when they are ill, as it is tedious and troublesome, while the results are always uncertain. Among fowls under proper care, it is seldom that disease makes its appearance. Disease is the result of a cause, and if the cause be removed, the trouble will not spread, provided the diseased fowls be at once separated. If what is expended in dosing and care, as well as what is lost from disease, was devoted to making better sanitary arrangements, and in preserving cleanliness and purity in and around the poultry houses, much more satisfaction would be the natural result.

A Spring Wheelbarrow.

The illustration shows a readily and cheaply constructed spring wheelbarrow. Instead of the spindles of the wheel passing through the ends of the handles or side pieces, straps of spring steel—old pieces of steel tire or springs will answer, are fastened to the under side to receive the spin-



A WHEELBARROW WITH SPRINGS.

dles. The pieces of steel are bent downward, to give the necessary spring. Any blacksmith can soon change an ordinary wheelbarrow to one of this kind. It is often desirable to have some spring in the barrow, as in hauling fruits, when too much jarring will be apt to do injury.

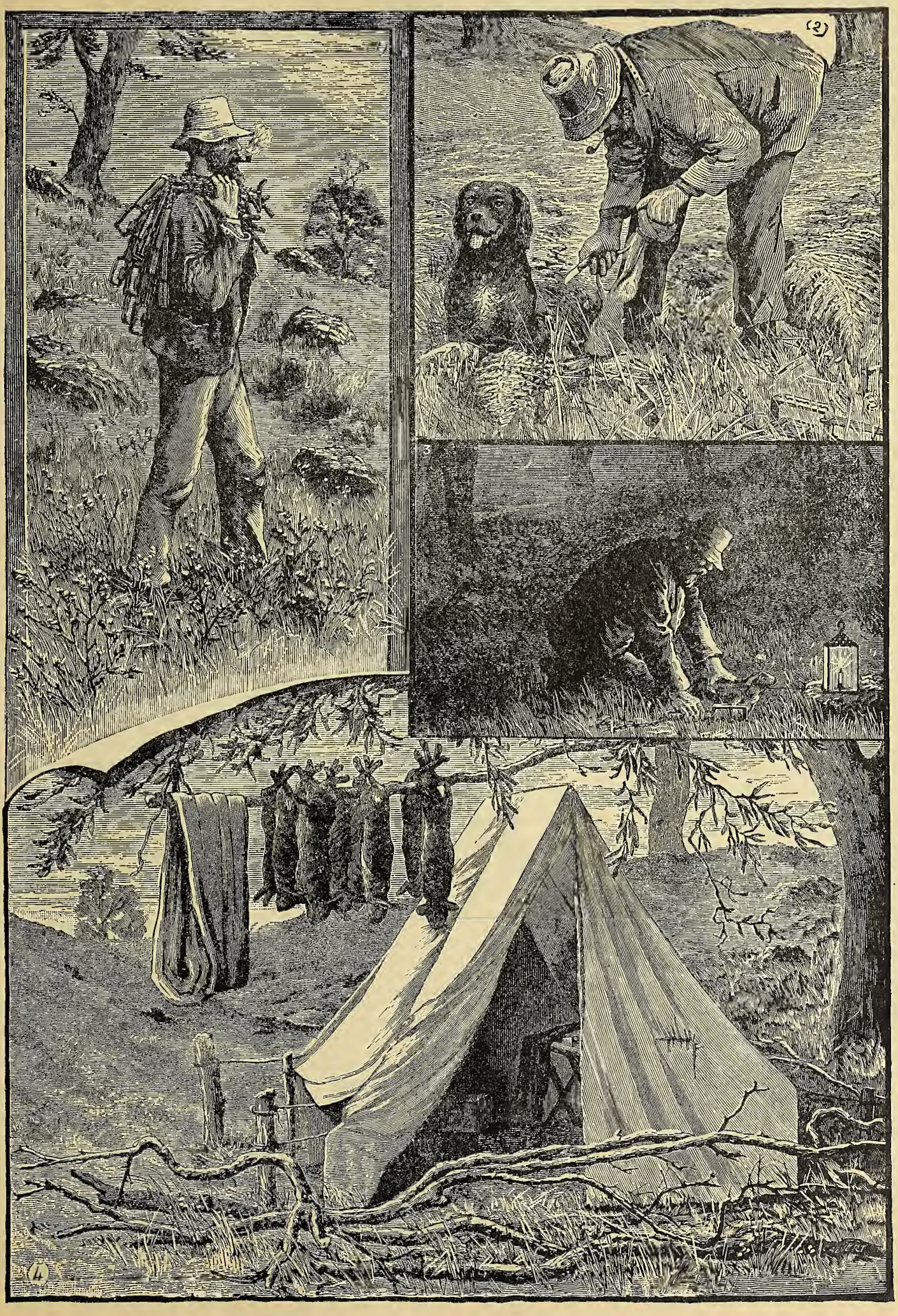
Rabbits in Australia.

One of the greatest obstacles the Australian farmer has to meet is the multitude of rabbits, which have increased to such an extent, that their numbers are beyond all computation. How to get rid of the rabbits, is a problem which presents itself to the Agricultural Societies, and the Colonial Legislatures. Moderate bounties, about eight cents per head, have been offered for their destruction, but the evil shows no manifest abatement. The principal methods of killing the animals are by poison, by suffocation, by "nesting," or digging out, and by trapping. The poisons most commonly used are arsenic and phosphorus, applied upon oats or other grain. But as the rabbits will not eat the poisoned



AN UNEXPECTED VICTIM.

food if any other is to be had, this method, though it destroys many, is somewhat uncertain. Suffocation is effected by the means of the fumes of burning sulphur. Several contrivances have been invented for forcing into their burrows, the gas produced by burning brimstone, and killing the inmates by wholesale. Digging out is more laborious than the other methods, but is very effective, as a score or more of rabbits, old and young, are often secured in one hole. A dog is in attendance to give chase to any of the animals that may attempt to escape. Trapping, though one of the slowest methods, is more like sport than the others, and for this reason is attractive to many. The engraving on opposite page presents scenes incidental to the trapper's pursuit. In figure 1, the trapper is starting out with a back-load of traps, one of which he has set in figure 2. In figure 3, the trapper is visiting his traps by night, while a view of the trapper's camp is given in figure 4. Australians are on the look-out for methods of utilizing the fur, skins, fat and flesh, that by rendering the trapper's labors more profitable, may make the work of destruction more rapid and thorough.



THE RABBIT TRAPPERS OF AUSTRALIA.

Re-grouped and Re-engraved for the American Agriculturist after the Illustrated Adelaide News.

What is a Bushel of Indian Corn?

W. E. STONE.

The measure of a bushel is commonly accepted as a fixed and indisputable quantity. It is based upon national standards which have existed in England since 1696, and in America from the first colonial settlement. As a measure of bulk this so-called Winchester bushel contains 2150.42 cubic inches of water. So far then the capacity of the measure is well defined and unchangeable. So many cubic inches of any material is always a measured bushel. But this quantity, though always identical in bulk, may vary greatly in weight, therefore a bushel of corn is by no means a definite quantity, and may have so wide a range of actual value that every person who produces, handles, or consumes the grain, is interested in the query which stands as the title at the head of this article.

In commerce a fixed weight is used as the equivalent of the measured bushel, but this varies so much in different States that it fairly illustrates the uncertainty surrounding the whole matter. By different statutes the legal bushel of barley weighs from 47 to 50 pounds; of buckwheat, from 40 to 52 pounds; shelled Indian corn, 52 to 58 pounds; oats, 30 to 34 pounds; rye, 50 to 56 pounds, while wheat alone remains constant in all the States at 60 pounds. The term bushel, therefore, does not express any definite quantity in weight even though the volume remains fixed. But the chief and real fallacy of this unit of grain measure, both in weight and volume, appears when we consider the composition of the product measured. We shall show that the proportion of water and solid matter in the grain, varies to such a degree that no unit of measure is accurate which fails to allow for the variation.

All grains in their natural state contain more or less water, the amount depending upon the conditions by which they have been surrounded. In Indian corn the moisture may reach as high as fifty per cent, and probably never falls much below twenty per cent at the time of harvest. Unfortunately but little is known of the exact composition of grains as they come from the harvest field. All published analyses give the moisture content as the sample came to the chemist, but usually omit to state its age or manner of curing. Professor Brewer's special Census Report on the cereals, gives 98 analyses of all varieties of Indian corn, having an average of 11 per cent of water, with a range of from 4.10 to 20.08 per cent, but most of the samples were undoubtedly taken from well cured corn.

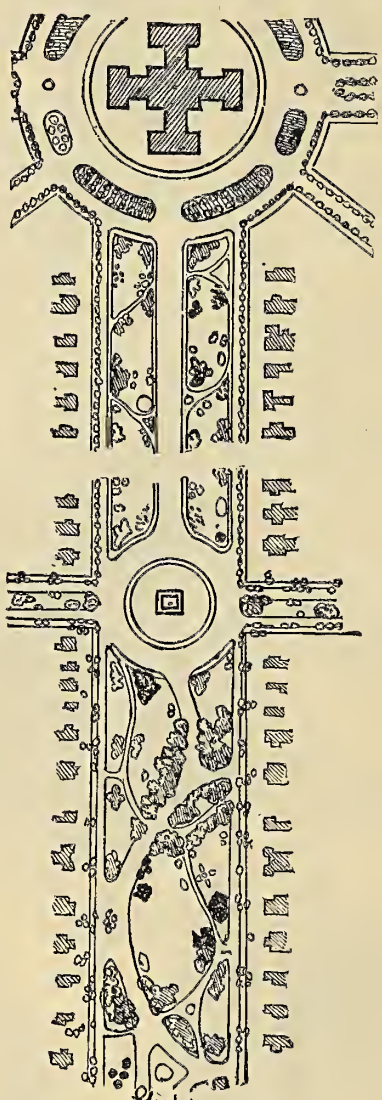
The curing process of Indian corn has been made the subject of careful experiment at Houghton Farm. Samples are selected at the harvest from each of the thirty-one experimental corn plots, and being grown with as many different manures, represent a wide range of composition. These samples are then stored upon suspended racks and under conditions which allow of rapid drying, and weighed at regular intervals during the succeeding year.

The observations of three years have been but a repetition of the fact that this grain continues to lose moisture under natural conditions for at least a year after harvest, *i. e.*, it requires a full year to reach what may be called a thoroughly cured condition. The following table shows the percentage of loss in weight of Indian corn at each of the specified times since the previous weighing:

	Harvest to March.	*March to July.*	*July to Oct.*	*Total*
Crop of 1881....	7.4	...	4.0	11.4
Crop of 1882....	3.5	7.9	4.4	15.8
Crop of 1883 ..	4.3	9.8	...	

Complete data on the crop of 1883 have not yet been secured at the time of writing.

There is a loss of from 10 to 15 per cent of moisture during the year, and a weighed bushel at the end of this time contains this amount of moisture less and an equal quantity of solid matter more than the weighed bushel at harvest, yet the legal weight, 56 pounds in most of the States, remains the same for both conditions. The only departure from this occurs in Ohio, where a legal bushel of corn on the ear weighs 70 pounds from harvest to January 1st, and 68 pounds from that time on. At Houghton Farm, the 31 lots before mentioned, selected from the crop of 1882, gave, in December following the harvest, an average weight per bushel of 54.1 pounds. The following April, bushels from the same lot averaged 52 pounds; in July, 53.4 pounds, and in October, one year from harvest, 55.4 pounds. The crop of 1881 was followed through a similar series of changes, and averaged 55.5 pounds per bushel, one year from harvest; hence Indian corn does not reach a standard weight per bushel, until after a year's drying. In business this is important. The increase of two pounds from July to October, was



A GARDEN BOULEVARD.

a gain of 3.7 per cent in value, if sold by weight, but not taken into account if sold by measure.

But we only arrive at the pith of the matter, when we consider the actual amount of valuable dry matter in the grain. This is the only true basis of value. It is fixed and unchangeable from the time of harvest, while the percentage of water decreases up to a certain point, and even then constantly fluctuates with the changes of weather, which Professor Brewer found by comparing a large number of analyses covered a range of 7 per cent.

Well cured Indian corn contains from 10 to 13 per cent of moisture, or in the bushel of 56 pounds, there are about 50 pounds of dry matter. The 31 lots which, after drying a year, averaged 55.4 pounds per bushel, contained 12.87 per cent of moisture, or 49.3 pounds of dry matter per bushel. The previous July, when the average weight was 53.4 pounds to the bushel, there was 14.94 per cent of moisture, or 45.4 pounds of dry matter. In April preceding this, the average weight per bushel was 52 pounds, with 19.65 per cent of moisture, or 41.8 pounds of dry matter, and the previous December, two months from harvest, the average weight per bushel was 54.1 pounds, with 22.73 per cent of moisture, or 41.8 pounds of dry matter. The year old corn was of standard quality, the others were not, therefore we will use it as a basis of value with which to compare the others. For illustration, let the standard be worth 60 cents per bushel, or 1.1-5 cent per pound for the actual dry matter; then a bushel of the same corn was worth only 54.5 cents, the previous July, 50.2 cents in April, and the same in December following the harvesting of the crop.

In business, no such variation as this is recognized, and more often no account whatever is made of the difference in value which may exist at different stages of curing. Indeed, 56 pounds of corn is as truly a legal bushel at one stage of the curing as at another. Both law and commerce overlook the fact that the value of the grain depends upon the percentage of dry matter, yet the above figures show the actual facts. It would be perfectly feasible to arrange a scale of values for corn of different ages, based on this principle, since the process of curing seems to go on with great uniformity for different years. Our careful observations for three seasons show but little variation in the degree of dryness, at corresponding times of each year.

Planning and Improving Towns and Villages.

Very few of our towns and villages were built up according to a plan. They grew to suit the convenience or the necessities of the early settlers. The crookedness of the streets in some now large cities, is due to following the course of the early country roads and farm lanes. Towns and villages start from a main street, upon both sides of which houses are built; after a while, when the distance from the older to the more newly settled portions becomes inconveniently great, streets are made parallel with the first, with cross streets to unite them. Sometimes a prosperous town that has been begun in this manner and grown to a large size, proposes to add to its attractiveness by establishing, at a heavy cost, a public park, which is frequently, to secure cheap lands, situated too far from the dwellings to be useful to the inhabitants.

Such towns, instead of being at a heavy expense to construct a park, mainly for the benefit of future generations, should consider that form of improvement known as Garden Boulevards. In the diagram Mr. Elias A. Long illustrates this style of town improvement, of which he says: "The engraving shows a garden boulevard four hundred and thirty feet wide, with great and small circles, and narrow boulevards and streets, that open into it of two hundred, one hundred and fifty, and one hundred feet in width. The plan shows two styles of laying out: the lower part in the park, and the upper in the avenue style. But in both, the natural style of arrangement mostly prevails. In addition to the main garden drives, there are walk-bordered roadways for traffic along each side, and into which private walks and drives open. Such an avenue garden, extending for one or any number of miles through a town, with wide circles at central points, supporting town halls, art galleries, museums, conservatories, or other edifices, and small circles at junctions with streets, containing monuments, statuary, or fountains, present an array of fine qualities difficult to equal. Add to this the area that on each side throughout the length, is embraced by private grounds, with residences setting back, let us suppose, at an average distance of about thirty feet, and altogether a garden is presented in effect, about five hundred feet wide from house to house, and stretching far away, which for grandeur, richness, variety, and healthfulness, stands unequalled by any other kind of town garden."

It may be thought that an improvement like this might be adopted in the newer parts of the town, but that it would be too costly to carry it out in the older and more densely settled portions. In answer it may be said that in cities where equally radical changes have been made, the increased value in the neighboring property has more than covered the cost of making the changes and improvements.



Bee Notes for November.

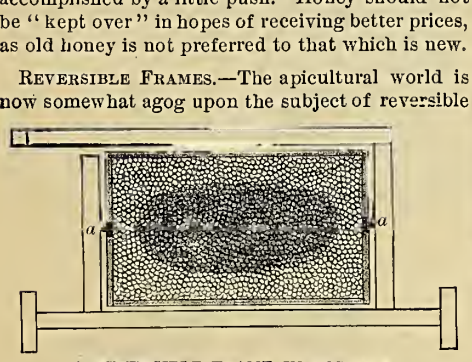
W. Z. HUTCHINSON.

Contract the entrances to the hives so that mice cannot enter. If the bees which are to be wintered out of doors have received no protection, furnish it at once. Have everything in readiness if they are to be wintered in a cellar or a "clamp." When it is evident that the bees have enjoyed their last autumn flight, carefully carry them in.

Bee-Keepers' Conventions.—Now begins the season of bee-keeper's conventions; and, if not too distant, it will pay to attend one or more of them. Before deciding to go, however, let the bee-keeper consider whether it would not be more profitable to invest the money it would cost in bee-keeping literature. The social feature of these gatherings is perhaps the most interesting part. To greet those whose writings we have read so long is a pleasure. The most instructive gathering the writer ever attended were conventions of two. The best way to learn about bee-keeping is to visit a successful apiarist at his place of business.

Selling Honey.—Small fruits and flies are now gone, the cooler weather excites the appetites for sweets, and if your honey crop is not sold, now is the time to dispose of it. The local market should be looked after first, and no honey sent to the distant markets until the local demand is supplied. When honey can be sold at home for three cents less than the quotations of large markets, it is, as a general thing, more profitable to sell it at home. If there is no local market, make one; if you have never tried, you will be astonished at what can be accomplished by a little push. Honey should not be "kept over" in hopes of receiving better prices, as old honey is not preferred to that which is new.

Reversible Frames.—The apicultural world is now somewhat agog upon the subject of reversible



A REVERSIBLE FRAME IN POSITION.

frames, that is, frames that can be inverted and used either side up. It is the instinct of the bee to store its honey above and as near to the brood nest as possible. When the combs are inverted, the bees proceed to remove the honey from the lower cells, and store it in the surplus boxes above, depositing brood in the cells thus emptied. When the brood hatches out in the upper part of the combs, its place is again occupied with honey; but, if the combs are reversed just before the close of the white honey harvest, nearly all of the white honey will be removed from the brood-combs to the surplus boxes, in which it can be sold at a good price. If there should be a flow of honey in the fall, the combs can be again reversed near the close of that harvest, and the brood-combs will thus be left at the end of the season nearly destitute of honey, and sugar syrup can be fed for winter stores, without the trouble of extracting honey at a time when robbers are especially annoying. Another advantage gained by reversal is that it induces the bees to finish out and attach the combs to the bottom bars, in the same substantial manner in which they are attached to the top bars. Many of the reversible frames now in use are not hanging frames like the Langstroth, but rest on the bottom of the hive upon metal projections attached to their corners, or upon elongations of their end bars. Reversible frames of this style are held at equal distances apart, and thereby lose a most valuable feature, that of being movable laterally. Numerous devices for allowing the reversal of hanging frames, such as tin corners, that can be drawn out or slid back at pleasure, wire loops, tin corners hung on pivots, etc., have been invented; but, as yet, nothing of the kind has been given the public that it is inclined to adopt. We received for inspection, a few weeks ago, from a gentleman in Missouri, a sample of a reversible frame, that is both simple and ingenious, as well as having the appearance of being practicable. It is a hanging, laterally movable frame, but instead of being hung by projections of the top bar, it is suspended by four projecting prongs of folded tin, two of which are attached to the sides of each end bar at its centre, and rest upon a strip of tin nailed to the inside of the hive, the upper edge of the tin being slightly bent out.

The prongs upon the nearest side of the frame are shown at *a*, *a*, in the engraving. If the prongs are spread apart slightly, it will give the frame a broader support. It will be seen that the comb can be used either side up very readily. By using the Langstroth frame, which is so shallow as to allow but little honey to be stored above the brood-nest inside the brood-frames, contracting the brood-nest and keeping the queen in it, by using a queen-excluding honey-board, we have succeeded in having so little honey stored in the brood-combs, that we have not yet thought it advisable to adopt reversible frames. Should we ever conclude to do so, however, it would be those of the hanging, laterally-movable style we have described.

The Ox Bot-Fly.

The Ox Bot-fly or Warble Fly (*Œstrus bovis*), is a serious pest to cattle. It has been carefully estimated that there are three-fourths of all of our cattle yearly tortured by this inveterate insect, which by a little trouble and at a small outlay could be extirpated. This fly, shown in figure 1, is about the size of the closely related bot-fly infesting horses. The female deposits small, oval eggs upon the hair or skin of its victim. The maggot, after hatching, makes its way into the lower portion of the skin. Small bands of prickles soon form on the maggot, and the most harmful portion of the insect's life now begins. The movements of the rough surface of the grub cause local irritation, followed by swelling, ulceration, and the opening of an orifice in the warble. This is the stage when the parasite should be destroyed. A small quantity of mercurial ointment, placed on the opening of the warble, kills the maggot within. This remedy is equally effective later in the life history of the warble, but if killed early, much suffering is avoided. Some preventive measures may be taken when the mature insects are depositing their eggs. The flies are usually on the wing at noonday, when the sun is shining. It is therefore desirable to provide a cool shade or shelter at midday. A tethered animal is more frequently attacked than one that is free to escape from the bot-flies. The coat of the animal may be



Fig. 1.—THE OX BOT-FLY.

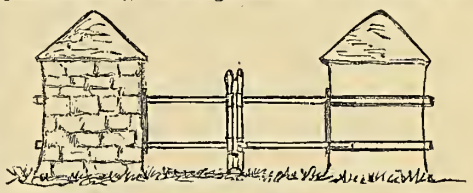


Fig. 2.—CHRYSALIDS.

smeared with grease, sulphur, and other substances not agreeable to the flies. These preventive measures are generally disregarded, and therefore the early destruction of the maggots with mercurial ointment is urged. The amount of damage done to the hides is great, when the warbles are permitted to run their full course. Chrysalids of the ox bot-fly are shown in figure 2. They are dark-brown, and not very unlike the maggot in shape.

Stone and Iron Gate Posts.

We herewith present a plan for gates to a gentleman's place (where stones are plenty), which is both effective and efficient. The drive-way is nine feet wide, the posts are laid up with stone and cement mortar, in the style known as "broken ashler," and well pointed and capped. The gates are of one-inch gas-pipe, made by uniting two five-foot pieces by T unions, in the manner shown in the engraving, or simply by "elbows." They should be about sixteen inches apart. These slide through the posts in pieces of larger pipe, which go entirely through the posts and are given a slight slant to the outside. The



A GAS-PIPE GATE WITH STONE POSTS.

lower parts of the gate-frames rest upon a flat stone in the center. These gates slide easily, and exclude animals, while one gate slides to admit persons on horse-back. If there is much passing in and out on foot, the gates may be brought together within a foot, and be prevented from opening wider by a chain and hook, easily removed. The same general plan can be carried out with wooden posts—setting two in place of the single heavy stone pier—to support the large gas-pipes in which the gates slide.

Coarse Fodder for Sheep or Cows.

A correspondent of the *American Agriculturist* proposes to buy stock to eat up his straw, corn-stalks, bean and pea-straw, and clover hay, and asks which will be most profitable and make the best manure? Sheep will make the most manure. If the cows are giving milk, the manure will lose the nitrogen, phosphoric acid, and potash, carried off in the milk. But you can sell this nitrogen, phosphoric acid and potash in the milk at a high price, and buy it at a comparatively low price, in the form of hay, mill-feed, cotton-seed cake, brewer's grains, malt-sprouts, etc. Whether sheep or cows will be most profitable, all things considered, will depend on your conveniences for carrying on the work, or the kinds of coarse fodder, and on the demand and price of milk at the farm, and what you propose to do with the cows after your fodder is exhausted.

Farrow cows that are giving milk, can often be bought cheap. If fed liberally they will give rich milk, and improve in flesh at the same time, and sell in the spring for considerably more than you paid for them. And the same is true of cows that are expected to calve in the winter. New milch cows in the winter, or early spring, are always wanted by the regular milkmen. We know men, who for years have made a regular business of buying cows in the fall, and feeding them all winter—selling part to the butchers, and part to the milkmen. They make money and manure, and find cows more profitable than sheep. Those who have had no experience, might do better by trying sheep. Sheep will do better on straw than cows. Good corn-stalks, cut before frost, and properly preserved, are excellent alike for cows and sheep, but they are probably fed to cows with more profit. And this is true of hay. The real profit in either case, especially where manure is wanted, comes from the extra grain, oil-cake, etc., fed in conjunction with coarse fodder. Straw and stalks alone, make poor manure. We gain nothing by passing straw through a sheep or cow. It is straw still. We must feed bran, oil-cake, malt-sprouts, or grain, and clover hay, in addition to the corn-fodder, if we want to fatten the sheep, produce milk, and make rich manure. We need not say that less labor is required to take care of the sheep. If you are in the country where there is little demand for milk, keep sheep; if near city or village, where there are plenty of dogs, keep cows.

A House Costing $3,500.

S. B. REED, ARCHITECT.

These plans shown in figures 1, 2, 3, and 4, represent a compact and tasteful house. It is modern in style and arrangement, and contains a fair share of modern improvements. Several such dwellings have been built during the past year, in each case giving much satisfaction. We give the following specifications: The hight in the clear of the cellar story is six and a half feet; of the first story, ten feet; of the second story, nine feet. The cellar is excavated to the depth of three and a half feet below the level of the grade in front of the site, and the loose earth removed from the grounds. Foundations are of hard brick eight inches thick, all exposed surfaces neatly pointed in the joints, and the whole made level. The area leading to the cellar has twelve inch jambs, and blue stone steps and coping. The chimneys are of hard brick and mortar. The kitchen fire-place has an opening suitable for an elevated No. 8 Range (eight inch jambs), with hearth and lintels of rubbed bluestone, and slate shelf above. All flues are separate and continuous from each story. The tops are laid in cement mortar. Iron thimbles and heating pipes are set where directed. The side walls and ceilings of the two full stories are hard-finished, on two coats of best brown mortar and seasoned lath. The parlor, sitting-room, dining-room, and hall in the first story, have neat and appropriate cornices, and centers in each ceiling. Soffits and corbels, with rule-joint corners, are set and finished across the openings of the bay windows. The frame of the house is of seasoned spruce timber of the following sizes, viz.:

Sills, 4 by 8 inches.	Girder, 4 by 8 inches.
Posts, 4 by 7 inches.	Ties, 4 by 6 inches.
Plates, 4 by 6 inches.	Hips, 3 by 8 inches.
Rafters, 3 by 4 inches.	Beams, 3 by 8 inches.
Studding (D. & W.), 3 by 4	Studding, (Int.), 2 by 4 in.
Veranda sills, 3 by 8 in.	Veranda beams, 3 by 5 in.
" plates, 3 by 7 in.	" rafters, 3 by 4 in.

Beams, studding, and rafters are placed sixteen inches apart from centers. The angles in all partitions are anchored together at their joinings, to prevent cracks in the plastering. All windows have plank stiles, and those above the cellar timber sills. The cellar windows have stone sills, one and a half inch sash, and glazed with second quality French glass. The cellar and attic sashes are hung on butts or pivots—all others to balance weights with best cord. The exterior sides of the frame to the hight of the belt course are covered with clear, white pine five-inch clapboards, laid to lap one-fifth of their width; and above the belts of pine, five by eighteen inch shingles showing one-third their length on T. & G. sheathing laid horizontally on sheathing felt. The water tables, belt courses, corner boards and cornices are of white pine as shown by the plans. The verandas and porch have level ceilings of narrow beaded pine. The roofs are covered with eight by sixteen inch "Bangor," Pa., slate on tarred felt and hemlock boards. All valleys, gutters, and flashing to be of the I C charcoal tin. Hips and ridges of zinc, are secured with iron galvanized straps. Leaders of I C charcoal tin, are put where required to convey all roof water to the ground.

The outside floors are of one and a quarter by four and a half inch T. & G. white pine, close laid in paint and blind nailed. The first story floors are one and an eighth by four inch T. & G. spruce, blind nailed. Other floors of one and one-eighth by seven inch, T. & G. close laid and double nailed. The attic is floored, but is otherwise unfinished, and serves as a large store room.

The main stairs are built of white pine, with newels, rails, and balusters of ash. The attic stairs are enclosed with narrow ceiling, with door at the foot and neat hand-rail above. The stairs leading to the cellar are of stout plank, with plain hand-rails along the sides, and door at top. All inside casings are of clear seasoned pine, with jambs and reeded architraves, head and foot blocks, all extending to the floor, with panels under each window. A chair back is put around the dining-room and kitchen, two feet nine inches from the floor. The bath-room, bath-tub, wash-stand, and water-closet are wainscoted with narrow T. & G. ash. The tops of the bath-tub and water-closet are of black walnut; of the wash-bowl marble, with wall plates complete. The kitchen sink is wainscoted with narrow pine, with door to form a cupboard. Closets are shelved and hooked in the usual manner. Hard wood saddles are put down to all doors, and turned stops behind all such as require them. All doors are five panelled, and moulded of seasoned white pine, double face one and a half-inch for outside and rooms, and single face one and a quarter-inch for closets. The front and balcony doors have reeded rails and mouldings, with tinted glass in upper parts. The outside cellar doors are strongly constructed of planking.

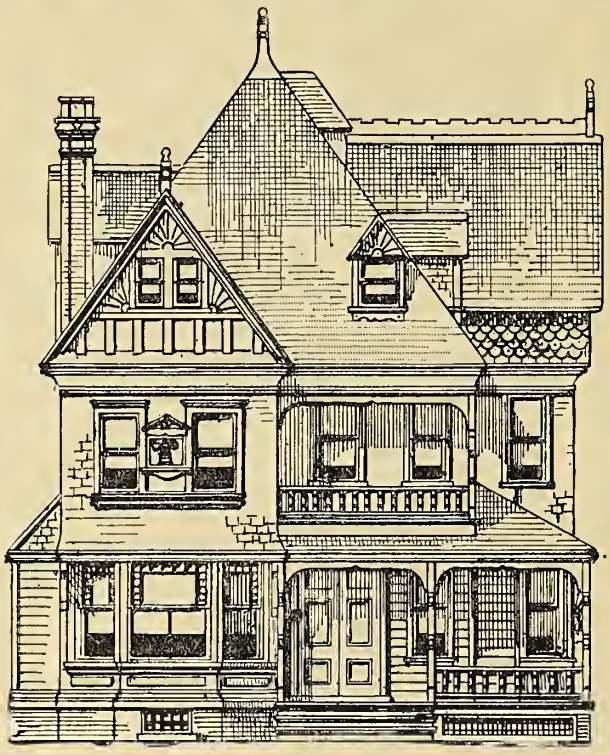


Fig. 1.—FRONT ELEVATION OF HOUSE.

The one and a quarter inch doors have rim locks—others mortice, all with brass bolts and keys. The knobs, roses and escutcheons in the first story main parts are imitation bronze; all others of porcelain, with silver-plated shanks and bases. The sliding doors are hung with "Warner's Hangers." Sash fastenings of approved pattern are put to all windows. The lock for the front door has night latch attachments. A gong bell is put in the front hall, with all necessary wires and cranks, leading to a bronze pull in the frame of the front door.

The outside dressed pine work has two coats of paint, composed of pure lead and linseed oil, with stainers to suit the owner. The inside finish is wood filled throughout, with the halls and parlor stained black walnut. A No. 8 Range, with water-back and elevated oven, and an oval top copper thirty gallon "Brooklyn pressure" boiler, with "Lockwood" stand, an iron sixteen by twenty-six inch sink, and a plank wash-tub, with two divisions and lids, are set in the kitchen. A French bath-tub, lined with planished tin fourteen-ounce copper—a "Zane's Sanitary" water-closet, a six gallon tank, and a twelve inch wash-bowl are set in the bath-room. Water supply pipes of one inch galvanized iron, lead from the street main to the rear of the cellar, and a three-quarter continuation pipe leads to the tank, with five-eighth branches for cold water leading to the sinks, tubs, boiler, bath-tub, water-closet, and wash-bowls, etc. A four-inch soil pipe leads from the bottom of the cellar to three feet above the kitchen roof, with all necessary branches for the connection of the waste pipes, and with joints caulked with lead. "Adee" traps of lead are properly connected with four inch pipe leading from the water-closets, and with the two-inch soil pipe, running from the sink, wash-tubs, and wash-bowl, and properly connected with the one and three-quarter inch waste pipes. The traps have screw plugs to each, and all necessary stoppers and chains provided. A stop and waste cock is put in the one inch pipe arranged to exhaust all waters from the distributing pipes. A sediment cock with waste branches connects with the cold three-quarter inch lead pipe, leading to the soil pipe. A drain of four inch vitrified tile is laid below the reach of frost, leading from the lower end of the soil pipe to the street, sewer or cesspool, with joints made perfectly tight with cement.—Estimate of materials, etc.:

107 yards excavation @ 25c. ℔ yard	$ 26.75
21,000 brick furnished and laid @ $15 ℔ M. (complete)	315.00
73 feet bluestone @ 30c. ℔ foot (complete)	21.90
960 yards plastering @ 30c. ℔ yard (complete)	288.00
Stucco work (complete)	60.00
6,500 feet timber @ $30 ℔ M. (complete)	195.00
250 joist @ 18c. each	45.00
325 wall strips @ 13c. each	42.25
500 sheathing @ 18c. each	90.00
300 sheathing felt @ 4c. ℔ lb	12 00
Water table, cornices, etc.	60.00
22 square slate @ $9 ℔ sq. (complete)	198.00
225 clapboards @ 18c. each	40.50
40 bunches shingles @ $2 ℔ B	80.00
500 feet tin work @ 10c. ℔ ft. (complete)	50.00
3,000 feet flooring @ 5c. ℔ ft	150.00
Veranda and porch (complete)	80.00
4 windows for cellar @ $4 each (complete)	16.00
33 windows, full, $9 each (complete)	297 00
33 doors, @ $7 each (complete)	231.00
3 stairs $60; 4 mantels $60 (complete)	120.00
8 kegs nails @ $3 ℔ keg	24.00
Plumbing, range, and furnace (complete)	500.00
Painting, $200.00; Labor not included above, $300.00	500.00
Carting, $50.00; Incidentals, $7.60	57 60
Total	$3,500.00

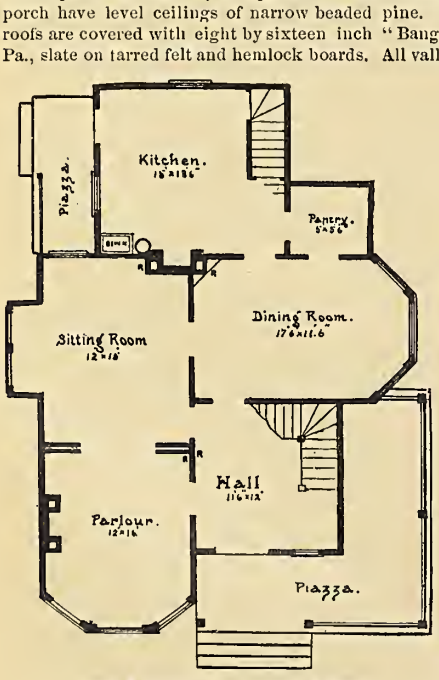


Fig. 3.—PLAN OF FIRST STORY.

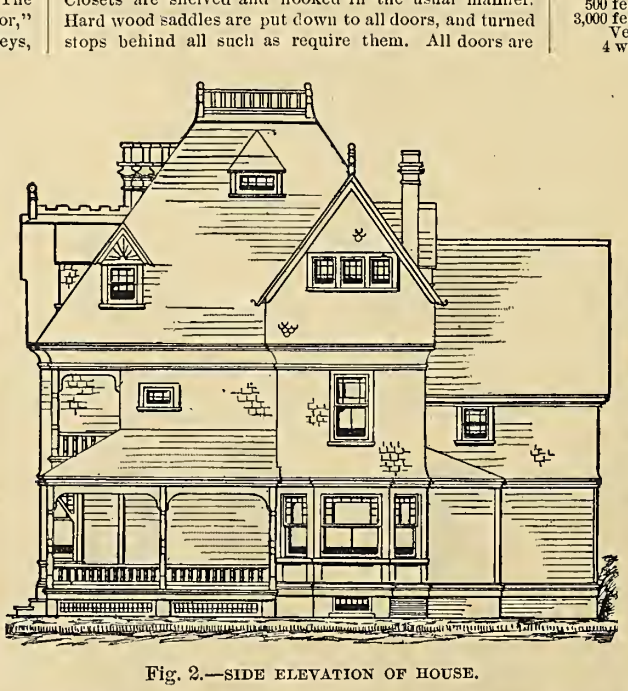


Fig. 2.—SIDE ELEVATION OF HOUSE.

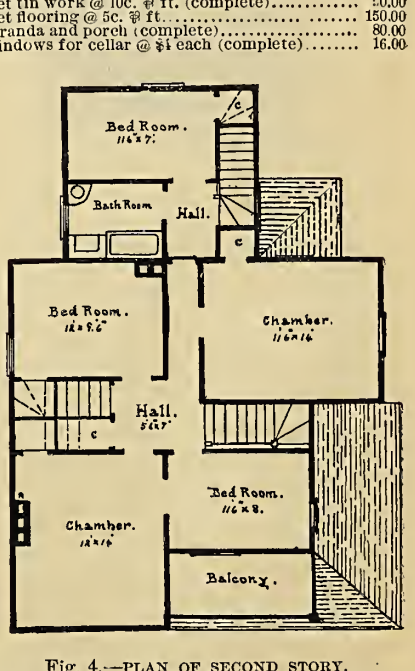


Fig. 4.—PLAN OF SECOND STORY.

Feeding and Care of Farm Animals.

PRIZE ARTICLE—BY "A WESTERN FARMER."

Swine.

The farmer who lives a long distance from market, or who has the range of a large wood lot, should select one of the larger breeds of swine. The villager who grows his own pork will find the small breeds best suited to his purpose. Berkshire, Poland-China, Essex, Duroc-Jersey, Yorkshire, Suffolk, and other breeds and crosses all have good points. From them any person can select the kind best adapted to his wants. The boar should be a thorough-bred, paying especial regard to its length and depth of body, vigor, health, and strength. The ears indicate fineness, alertness, and vivacity; the eye and mouth intelligence and tractability. Give him room for exercise, good water, and let his food be varied. The sow should be of good shape, strong, healthy, perfectly docile and well grown. Very young sows deteriorate the stock; full grown sows improve it. While growing, vary her food, give her all the grass range possible, to develop body and strength. After being bred to the boar it is best to keep her separate from shoats and fat hogs. Her food should be bulky rather than strong—to satisfy but not to fatten. Slops, bran, oats, roots, and well cured clover hay—cut in blossom, chopped and steamed, or wetted and primed with oat-meal or corn-meal is an excellent bulky food mixture for a sow. Provide plenty of pure water with dry shed and abundance of bedding. Pet and handle her as much as possible. The average period of gestation is one hundred and fifteen days. Ten or twelve days before farrowing, place the sow in a warm, dry pen, about eight by ten feet square, and give but a few handfuls of short straw and forest leaves for a bed. This is an important point. With a large quantity of bedding she will construct a deep nest, and in it more than likely, crush her young pigs to death. With a small quantity she will make a flat nest, and unless foolishly vexed or disturbed, will rarely injure the pigs. Years ago I tried the much lauded plan of fastening a rail around the inside of the pen eight or nine inches above the floor and out from the sides, and giving more bedding. The experiment cost me about fifty dollars worth of pigs crushed and chilled to death. For a month before farrowing, feed little or no grain. Potatoes, chopped mangels, apples, and other cooling, succulent food, should be fed for the purpose of keeping the blood cool and relaxing the system. A sow thus fed will be quiet, and seldom show a disposition to devour her pigs. After farrowing she will eat very little for a day or so. A thin, sloppy mush of skim milk and oat, barley, or corn-meal, and bran is best for her. Gradually increase the solid foods to all she can eat, make her slops nourishing and provide it in plenty. When the pigs are able to look out for themselves, clean out the pen and supply an abundance of short straw and forest leaves for bedding. Open small doors and let the pigs run out to exercise in the sunshine. If there is a poor runt in the litter destroy it. It might make a hog in time, but it rarely pays to keep it. When pigs are about four weeks old, open the doors and let them into a yard. Feed all together, but let each sow and litter retain its own pen for a sleeping apartment. Induce the pigs to eat as early as possible by placing a trough where only they can get to it. Feed them twice a day with thin slops of corn-meal, pea-meal, or wheat middlings and skim milk, or kitchen slops. When the clover will furnish a bite, let the sow and pigs into pasture. Continue to supply all the slops and meal, or soaked corn, they will eat, and also plenty of water. Make a deep trough, fasten a cover on it with hinges, and through one end cut a snout hole. Bank the earth against it even with the top, and keep it full of water. Scrub it out once a week. While suckling the pigs the sow is to be regarded simply as a machine for the production of pork; hence it is advisable to let the pigs run with her until she makes strenuous efforts to wean them, then she should be removed.

While the pigs are being weaned, castrate and ring them. Use a smooth ring with points meeting outside of the flesh. Place it firmly in the end of the snout, just full, so it will remain but not pinch. As hot weather comes on, provide a dark shed with a dry plank floor, and in it feed green sweet corn. The pigs will rest in it, and eat corn through the heat of the day, and feed on the clover at night. Sweet corn is capital feed for growing pigs, and should be used from the time it begins to ear until frost. The early and late varieties will furnish a succession. As cool weather approaches, gradually increase the supply of solid, strong food, and finally shut off the clover.

Experiments have proved that corn is not the best food for the production of pork when fed alone, but it is employed more extensively than all other grains, roots, and vegetables together. If used as a chief article in combination with other foods it is unequalled by any other cereal or vegetable that can be successfully grown over as great a range of country. Peas, barley, oats, mangels, potatoes and artichokes are undoubtedly valuable to a certain extent, but they can never supersede corn for reasons obvious to every intelligent farmer. We shell corn and soak it in water twenty-four hours to soften it, because some hogs with defective teeth, cannot thoroughly masticate it when hard, and consequently waste a great deal. Soaked corn contains all the fattening qualities of cooked corn, and is as digestible. Soaking costs nothing; cooking is expensive. For soaking corn it is best to use two tanks or tubs. When a cheap power can be obtained it would probably pay to coarsely grind or crack the corn; twelve hours would then be sufficient for soaking. For variety, and to keep the hogs in healthy, thrifty condition, feed potatoes, mangels, peas, artichokes, oat-meal, and bran or middlings mixed to a mush with skim milk or slops; even if only in small quantities they will prove very beneficial. Aim to feed hogs for market profitably. Intelligent observation and experiment will show how it can be done. Remember that warm, dry, well-bedded sheds are absolutely essential to profitable feeding.

Keep your eye on the market and get all the information you can concerning the supply of hogs and pork. Take advantage of a rise and sell. Fine, smooth, even lots of hogs are always in demand, and are certain to bring the top price. Farmers living over a mile from market will find it much the best plan to erect a chute, loading their hogs into wagons and hauling them. In case they are driven, some of their bedding should be taken along in a wagon for use on bridges. Hogs will readily walk over a bridge on their old bedding. After passing over one bridge the bedding can be raked up, loaded into the wagon, and used on the next, and so on.

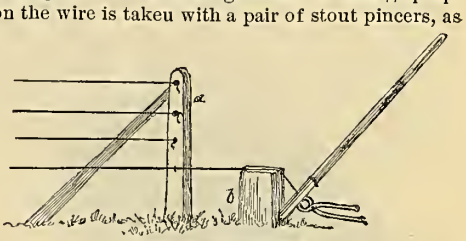
Sows should be bred for two years, and then fattened and sold. Begin feeding grain about September 1st, while on grass, in full flesh and thrifty condition. About four weeks before they are to be marketed, the pigs should be confined in a small, warm, dry, and well-bedded pen, and fed heavily with soaked corn, or meals mixed with skim milk, slops, etc., and an occasional ration of artichokes or other vegetables. Under such treatment the sows will fatten very rapidly, and prove profitable.

Provided with wholesome food, pure water, and clean, dry, well-littered shed, a hog will never become diseased unless previously infected, and that the farmer must carefully guard against when procuring his change of stock. A healthy hog requires no stimulants, preventives or tonics of any kind. A diseased hog should be completely isolated from all others, or killed and burned. Lice are indications of ill-condition or unclean quarters. Kerosene applied with a swab will destroy the vermin.

The best time to have pigs farrowed is an open question. With plenty of shed room, warm pens and yards, it is much the best plan to have them early in March. Without these conveniences, the middle or latter part of April would be better. Much also depends upon locality. North of thirty-nine degrees there is often considerable very severe weather in March, and the early part of April, while south of that latitude there is but little. Each farmer must take all these facts into consideration, and decide the question for himself. When a boar's tusks become too long, saw them off before he injures valuable stock. In ringing an old sow, place one ring in the end of the snout, and one between the nostrils, the same as a bull ring. Many prominent feeders hold that all kinds of food should be slightly fermented, as it is more easily digested, and leaves the stomach in better condition. This has been our experience also, but we have learned that some care and skill is required in this mode of preparing food. If it passes the first degree of fermentation and becomes a little too sour it is very injurious. We prefer to feed unfermented food if there is the least danger that it may, from neglect or inexperience, become too sour. Artichokes are useful for breeding sows in the late fall and early spring. They should be planted in a dry, loamy soil, so that they may be readily dug when wanted.

Fastening the Wires of a Trellis.

The tightener is made of a stout piece of well-seasoned oak or cedar, and has a slot sawed for about eighteen inches from the bottom, through which the wire is passed. To prevent splitting, a ferrule is placed on just at the top of the slot. The wire is loosely secured with staples to both the main post *a*, and the straining post *b*, and is passed through the slot in the tightener. A firm grip upon the wire is taken with a pair of stout pincers, as



A WIRE TIGHTENER.

close to the tightener as possible. The upper end of the tightener is pulled down until the wire is taut, when the staple in the straining post is driven down. The wire is cut off at a convenient length, and the end wound around the staple. In late fall we draw the staples in the straining posts, and the following spring adjust the wires again. The engraving, to avoid confusion, shows the lower wire only, passing to the straining post. In use, all the other wires are carried to the post.

Building an Ice-House.

We can best answer numerous inquiries about building an ice-house, by giving a description of one we put up for our own use a few years ago. The locality selected was one affording facilities for drainage, was well shaded by trees, and conveniently near the house. The surface being sandy, was levelled, and four by six inch sills, fourteen feet long, were laid down and halved together at the corners. The plates of the same length, of two by four inch stuff, were put together in the same manner. Studs two by four, and thirteen feet long, were mortised into the sills and spiked to the plates every eighteen inches. The roof, a "square-pitch," is covered with ten-inch boards, two inches apart, and other boards of the same width nailed on as battens. Hemlock boards, nailed horizontally on both sides of the studs, cover the sides and ends; the four-inch space between the outer and inner siding, being filled with sawdust. There is a door at the ground level, and another just above, both being practically double, by means of horizontal boards placed on the inside as the house is filled. The roof projects over the sides about a foot, and the spaces between that and the plates are left open to afford ventilation. A layer of sawdust, four inches or more thick, was laid upon the ground, and the blocks of ice stacked upon it as closely as possible. The top of the ice is covered with a layer of marsh hay, about two feet thick. This house, if filled up to the roof, would hold about sixty tons. When half filled, there has been a considerable quantity of ice left over each year, though it has been used very freely. The cost of the house is small.

Farming in Germany.

Germany may well be classed among the great agricultural countries of the earth. More than half of its forty-three million population cultivate the soil. Agriculturally considered, Germany is a magnificent country. The centre and southern portions of the empire are a range of high table lands, interspersed with numerous ranges and groups of mountains, and abounding in the finest timber, growing in a soil rich with the decay of



A WAYSIDE CROSS.

centuries. The northern section is a vast sandy plain, stretching from the Russian frontier on the east to Holland on the west. A portion of these plains is valuable chiefly for grazing and for its deposits of peat, but a good half is fertile under successful cultivation. It is a peculiarity of the physical constitution of Germany, that little of the earth's surface is waste. The very forests, grim and desolate to look upon, serve to fatten the famous pork, the growers of which American competition recently threw in such a flutter.

Although carried out upon an old-fashioned



GLEANING FODDER.

plan, farming in Germany is really superior in its development to that of any other section of the continent of Europe. The sterling industry, intelligence and skill of the Germans as an agricultural people, is shown by the prominent position they occupy among the farmers of the New World. Emigration brings to our shores no class of agriculturists so alive to the possibilities of their profession, and so ready to labor and expend money on its improvements as they. The enormous area of the various European States now comprehended in the German empire, over two hundred and eight thousand square miles, is prolific of nearly all the leading crops known to civilized man. The vegetable products comprise a very large proportion of the European flora. The north is especially rich in the ordinary cereals, all of which are extensively cultivated and exported, chiefly from Würtemberg and Bavaria. The latter State enjoys its principal distinction, however, from its hop crop. Chicory is another of its products, which has an European reputation. The chicory grown in Bavaria, and throughout the districts between the rivers Elbe and Weser, supplies the place of coffee to more than half the people of Europe. While the grains grow best in Northern Germany, the central districts are most prolific of hemp and flax, madder, wood, safflower, and similar products, which they export in enormous quantities. The best vine districts are found in the valleys of the Danube, Rhine, Main, Neckar, and Moselle, but the vineyards extend over the country in all directions, as far north as Prussia, and produces wines of excellent qualities. The great plains which border the Empire on the North Sea, are noted for their magnificent breeds of horses. The famously fine wool of Germany is chiefly derived from Saxony, Silesia, and Brandenburg, where sheep flocks are bred to a high degree of perfection. The rich alluvial flats of Mecklenburg and Hanover are celebrated for their cattle, and all the forests of Northern and Central Germany produce a superior and famous breed of swine. South Germany still abounds in various kinds of game.

Standing next to Great Britain in the care and success with which its agricultural possibilities have been cultivated, Germany is in many senses better circumstanced than that country, as far as its agriculturists are concerned. There is far less abject and grinding poverty among the lower order of agricultural laborers, and a more permanent prosperity among the middle-class farmers. Not a little of this is due to the Agricultural Colleges, established by the States, and which, by educating the youth of the country, have made farming as honorable a profession as medicine or the law. Several of the States have also done much to advance agriculture by the periodical agricultural exhibitions, which promote the adoption of the latest improvements in machinery, and extend among the lowest order of peasants a practical knowledge of the advancement of the times.

Many of the great German land-owners cultivate their enormous estates personally, and live lives of an almost patriarchial character, devoted to the improvement of their teeming acres, and of the people who populate and work them. The State also owns vast tracts, which are cultivated by lessees or foremen, as the case may be, and whose agriculture is carried on by an army of laborers, with military strictness and precision. The middle-class farmers in many instances live upon farms which have belonged to their families for centuries. These farmers constitute a sort of rural aristocracy, like that of the country squires in England. As in all the rest of the Old World, however, the farmer's lot in Germany is one of much work and little pleasure. Upon a German farm of the more modest order, every one works—women as well as men, and children as soon as they are able to be made useful. Labor begins with the dawn, and ends with the day. The country is a great garden, bursting with the wealth of its soil products, but it is so because those who populate it are an industrious, skillful, and tireless people, who permit no toil to stand between them and success.

The sectional peculiarities of the rural population of Germany render it impossible to give any description of farm life which shall apply to the whole country. Broken up for centuries into petty States, the people of the Empire still preserve the costumes, manners and customs which characterized them when they were separate peoples. Traveling from farm to farm, you suddenly find yourself confronted by farmers whose dress, speech, and manner of living, are all distinctly different from those you have just left. You have simply



A LANDED PROPRIETOR.

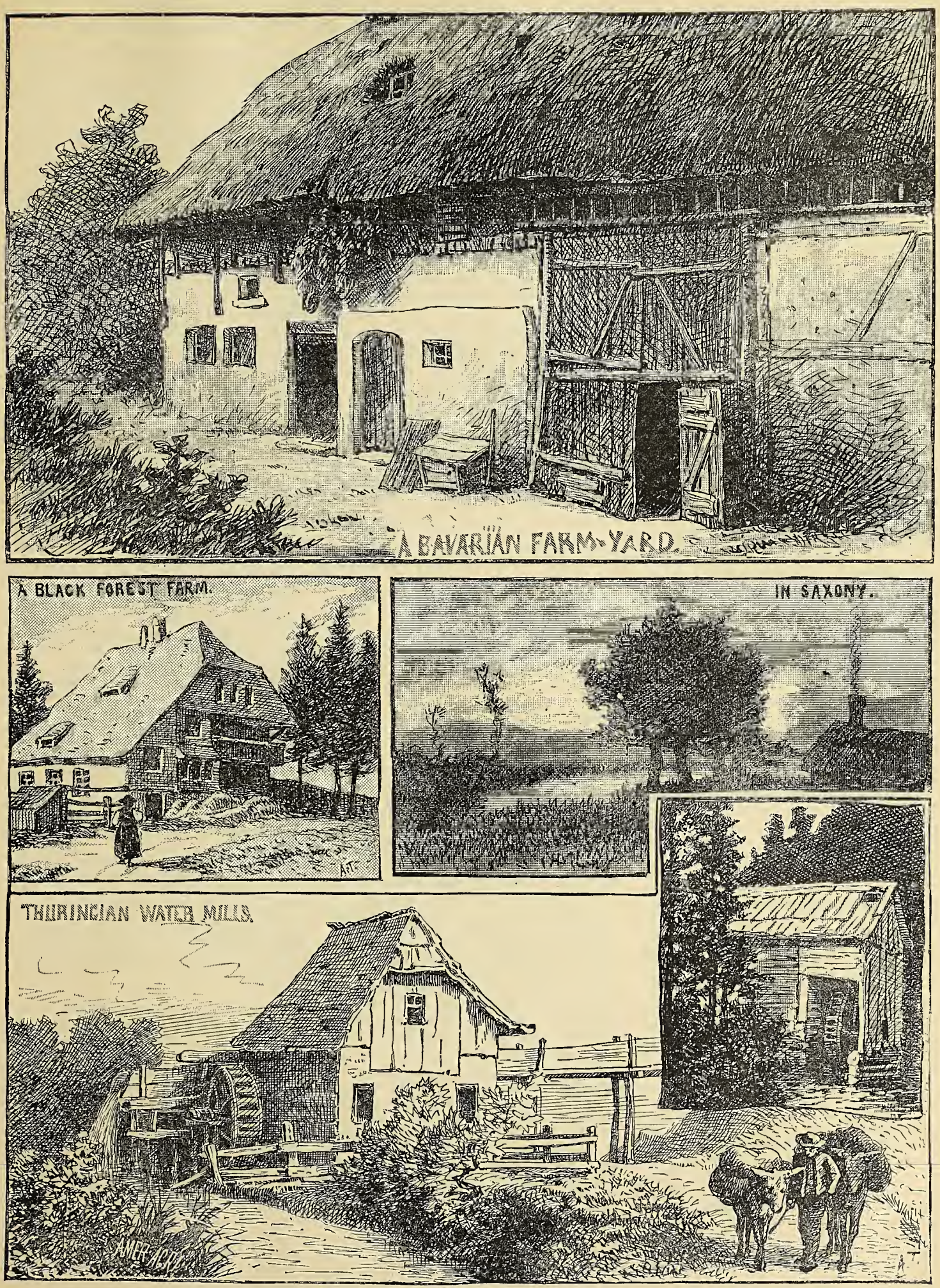
crossed the border from one of the old States into another. Germany is one great nation now, but it will still be generations before the German people become one homogeneous population like our own. No matter what their differences of habits and living are, however, you never find the German farmer plunged in ignorance. He may be uneducated and rude, but he is a man beneath his rough skin; a man who starves neither himself, his family, nor his brutes, who does not keep his children in ignorance to save a few dollars, and who does not refuse to learn how to improve his farm, or the condition of his family and flocks, because the old way, which was good enough for his father, is good enough for him.

One universal trait of the German farmer is worth especial notice. Nowhere in the world is there to be found a community more moral and sincere in its cultivation of the domestic and personal virtues. Be the district Protestant or Catholic in its faith, its denizens will be found to practice that faith with the fervent and uncompromising



THE FARM BOY.

devotion of true Christians. Honoring his God, and the divine laws, it is no wonder the German farmer has won for himself the reputation for pure manhood, inviolable honor and patriotism he enjoys. Integrity and industry are well rewarded.



FARM LIFE IN GERMANY.

Drawn and Engraved for the American Agriculturist.

Among the Farmers.

New Series.—No. 7.

BY ONE OF THEM.

The markets, the hands we can hire, the crops the land will grow, the insects, and our own knowledge of these and other things, determine the success of our farming operations. There is such a multiplicity of things to be considered, that it is most natural farmers should settle down, and let the farms run themselves in "the good old way." There is probably not a tilled field on the farms of most of the readers of the *American Agriculturist*, on which the established course cannot be followed out. This may be corn, potatoes, oats, or barley, and grass; or corn, roots, wheat, and grass, or some other regular rotation by which the land gets a good manuring once in five to eight years, and top-dressings or manure in the drill more or less between times. Innovations come slowly, and usually take little hold of the people, because farmers are conservative and distrust new things.

The Silo.

The Silo is a wonderful innovation, which has gone steadily on, constantly adding to the numbers of its firm adherents. The use of ensilage is becoming more and more general. I have now no means of estimating the number of tons of corn-fodder ensiloed this year, but it must be enormous. Experience has been a good teacher as usual, and the work has been better done, the corn less frosted, and the quality of the ensilage will no doubt be proportionately better. Even if ensilage is really no more nutritious than well cured corn-fodder, the cattle like it so much better that it is a great satisfaction to feed it. They eat it clean; the manure seems to be worth more, at any rate it is much better to handle. The time-honored custom of foddering the cattle on some convenient lot, over which the corn-fodder can be evenly distributed in the feeding, so that the stalks may be plowed in where the cattle stripped them of their leaves, has, I hope, received its death blow.

Sweet Ensilage.

The subject of sweet ensilage was well discussed last winter and spring. I know of a number of silos which have been filled with the view of testing Dr. Miles' theory, and the value of the material. The experiments should be carefully written down, so that the conditions may be known. Then when the silo is opened, the experimenter will have all the facts before him. I have seen silos which were filled slowly when the heat rose quickly to one hundred and twenty-five degrees, and even higher, and in which it seemed to be uniform. The method of testing was very simple. Holes were made in the ensilage with a fork handle, and a common floating (all glass) thermometer was lowered into them by a string. After remaining there a few minutes it was drawn up and inspected. The advantages of sweet ensilage must be kept in mind, notwithstanding that the law of the State of New York, in forbidding the feeding of fermented food of all kinds to milch cows, makes especial exception in favor of "ensilage from silos." A great part of this material as usually preserved is utterly unfit food for cows. Its composition is of the most indefinite and uncertain character. It contains various acids, some comparatively innocent, like lactic acid, others most injurious, as acetic acid (vinegar). Some samples contain a notable quantity of alcohol, which rapidly changes to vinegar on exposure, while in others the fermentation has progressed so far that the ensilage has the odor of decay, or is rotten, and not fit for pigs. The object aimed at in making sweet ensilage, is to start an active fermentation at the very first, when more or less air is present, so that the heat thus raised shall destroy the germs of that slower fermentation which takes place when air is excluded. The degree of heat which may be generated in vegetable substances in the presence of the right quantities of air and moisture is something wonderful. The heat of boiling water is readily attained, and spontaneous combustion no doubt sometimes occurs from this cause. Hence when a heat sufficient to kill the germs of fermentation has been reached, say one hundred and twenty-five degrees to one hundred and thirty degrees, it is of course policy to check it at once by excluding the air, because fermentation goes on at the expense of the material itself. The only difficulty, which, so far as I can learn, has presented itself, is that of securing a uniform heat throughout the entire mass—in the corners, and along the side, as well as in the middle of the silo.

According to Prof. Miles' experiments, a heat of one hundred and twenty degrees proved uniformly fatal to the germs or ferment plants, so if we find a temperature of one hundred and twenty-five degrees to one hundred and thirty degrees existing in the general mass, we may reasonably expect that one hundred and twenty degrees exists in the corners and against the walls. Those minute organisms which I have called germs of fermentation, and ferment plants are known by sight only to microscopists, and by them are called "Bacteria." There seems to be, so far, an unlimited number of different kinds, and investigators are constantly finding new ones, very much as the astronomers used to "pick up" asteroids—and really a bacterium is about as hard a thing to pick up as an asteroid of the tenth magnitude.

Bacteria.

This bacteria question seems to be getting serious, and if we believe all the microscopists and pathologists tell us, we have now-a-days more to fear from these little plants than we would ever have imagined. The engraving shows the circular field of a microscope in which several specimens of bacteria are seen greatly magnified. It is said that bacteria cause all kinds of true putrefaction and most



BACTERIA—HIGHLY MAGNIFIED.

of those decompositions which are of a kindred character; they regulate decay, are the direct cause of many diseases, and floating in the air they cause epidemics and epizoötics. It is supposed that influenzas, scarlet fever, cholera, and other "catching" maladies are caused by them, also that contagious ailments among animals come from the same source. Foot and mouth disease, hog cholera, chicken cholera, roup, Texas fever, pleuro-pneumonia, and many other diseases of animals are supposed to be caused by different kinds of bacteria. Consumption in man is of similar origin.

Pleuro-Pneumonia at the West.

The occurrence of pleuro-pneumonia among certain herds of cattle in Illinois, and the wholesome dread of this disease which seems to be universal at the West, leads me to allude to my experience with the disease in 1859 and '60. It will be remembered that at the time of the breaking out of the contagion in Massachusetts, in 1859, the State Legislature appropriated ten thousand dollars (to which private subscription added fifty thousand dollars, making sixty thousand dollars in all), and authorized the slaughter of all infected herds. I was present two days in North Brookfield, when the commissioners were in the midst of their work of slaughter. The animals had all been inspected. All obviously diseased animals were killed without remuneration to the owners, and the other animals in the herd were appraised at a low market value. The farmers, who had been previously notified, had great pits dug, and the cattle were solemnly driven to them, knocked in the head, their lungs opened and examined, memoranda made, and every hoof buried five feet under ground. Think, for a moment, what sacrifices for the common weal these good people were called upon to make. Are the Illinois farmers equal to the occasion? It takes a man of some nerve to lead out a herd of thirty to fifty head of fine cattle—or if not fine, the best and all he has—to the deep trenches and proceed to bury them. It is no less hard for the good housewife to turn her cheeses, in sorrow, that no more for months can stand by them on the empty shelves, to pour away the last milk, and churn the last batch of cream, and scour the tins for the last time, and set them out to sun. I well remember how a word of sympathy spoken to a good woman in North Brookfield, caused her tears to flow like summer rain. Why it is that this disease has not proved as virulent in this country, as in parts of Europe, and especially in South Africa, I do not know, and it remains still an open question what it will be in any section where it has not been. I have for twenty-five years dreaded the time when it should make its appearance at the West. It seems now that there can be no doubt about it. Dr. Loring, the Commissioner of Agriculture, knows the disease very well, and was, I believe, one of the Commissioners who extirpated the disease in Massachusetts, associated with Dr. Dadd and Hon. Amasa Walker, who were the most active. Do not let us forget that this same disease made its appearance in South Africa, in the Dutch settlements, and quickly spread into the Zulu country, where it absolutely annihilated the cattle interest. An American missionary, Rev. Mr. Lindley, related to me that he was at the time stationed among an isolated agricultural tribe, whose chief wealth consisted of cattle. As the disease approached, he roused his people, and they established an armed cordon around their fertile valley, and absolutely prevented all cattle from entering. Thus for years they kept their herds free from disease, and saw the utter blotting out of the cattle of their neighbors. There is, however, great hope that the disease will not prove so fatal at the West. The spring and summer of 1860 were hot and dry. At the beginning of the season there were isolated herds in which the disease had showed itself, in Connecticut, New Hampshire, Vermont, and New Jersey—at the end of the season it appeared to have been "burnt out." Whether the heat got up to one hundred and fifteen or one hundred and twenty degrees, I do not know, but the cattle that had it died, and no more appear to have taken it. They have experienced quite a drouth at the West, and I have much hope that the disease may be "burnt out" there. The heat of the sun at my place sent the thermometer up to one hundred and forty degrees for several days in September, though it was only eighty-six to ninety degrees in the shade. No doubt such heat seriously interferes with the spread of lung murrain and similar diseases in cattle.

WHOLESALE SLAUGHTER OF BIRDS.—The bad fashion of wearing bird-skins as trimming for bonnets has caused such a slaughter of our feathered protectors that it may soon become a serious matter for farmers and fruit growers. The amazing fecundity of some of the most destructive insects places birds in the list of necessities. No other agency can keep down these swarming devourers of vegetation. One dealer on Long Island is said to handle thirty thousand skins a year, exclusive of many that are so mutilated that they cannot be used. Hundreds of people there do nothing else from early in the spring through the season but kill birds for these middlemen, who supply the taxidermists. A woman is carrying out a contract to furnish a Paris millinery firm with forty thousand or more skins at forty cents each, she paying the bird butchers ten cents each for skins not too much torn. Only old birds furnish suitable skins, and this of course means the cruel death by starvation of multitudes of young ones.

Cheap Shelters for Swine.

The gain from sheltering farm stock in winter is so great that it should never be neglected, and no animals give a larger return for shelter than swine. When exposed to the weather, these animals will huddle closely together, and in their struggles to get to the center of the heap, where it is warmest, some may be severely injured. They will become heated in the heap, and when they get up the cold air strikes their bodies, and producing congestion, induces the fatal diseases so prevalent during the latter part of the winter. There is a great saving in food by sheltering; experiments have shown that in severe winter weather, sheltered hogs will, from the same amount of food, lay on nearly twice as much flesh as those exposed. The hog seems to be the least adapted of all farm animals to endure exposure; it has not the thick skin and coat of the ox, or the warm fleece of the sheep to retain bodily heat and to protect them from the piercing cold.

The farmer who has a few logs or large poles, and straw for a roof, need be at no expense for materials in making a swine shelter. Select a southern or eastern slope, when possible, and if wooded, all the better. Build up with logs or poles a square pen four feet high. Any sized logs or poles may be used, but the best are a foot or fifteen inches in diameter for the four lower ones, using lighter ones (say six inches in diameter) towards the top, where it would be difficult to place logs as heavy as those used in the bottom. The logs must be notched, or else the chinks between them stopped with boughs or slabs, to make the sides tight for two feet from the ground; above this, notch the poles only enough to make them lie solid, and leave the chinks open. The lower logs must be notched enough to keep them from rolling. On the upper sides of the pen, dig a shallow trench a foot or so from it, and bank up earth from this against the logs, to prevent surface water from running in. Lay poles across the top and on these build a roof of straw. In the east or south side saw a doorway three feet wide, nailing boards to the ends of the logs to keep them in place. No door is required. Give no litter; the animals will be warm enough without it. The roof should project a foot beyond the poles all around, to keep the snow from drifting in at the crevices; this can be done by making the poles which support the roof sufficiently long. This pole shelter protects the swine from rain and snow, and the lower part of the walls being solid, from cold winds. Hogs sleeping in a shelter soon contaminate the air; as their bodies and exhalations heat this air, it rises and passes out at the openings in the walls, while the cold outside air enters and gradually settles; this allows the hogs to constantly have pure air, while cold wintry blasts do not strike upon them.

An excellent shelter may be made on a hill-side, sloping towards the south or east by digging down the bank perpendicularly to form a wall four feet high, making the floor level. Ten or twelve feet from this wall set a row of forked posts, upon which lay a pole for the roof to rest upon. Upon this pole smaller ones or rails may be laid, and upon them a straw roof is built, or a board roof may be laid from the wall to the pole. In this case it is best to have a pole in the middle also. If there is to be a straw roof, the pole in the forks and the top of the wall must be on a level, but for a board roof the pole must be six inches lower than the top of the wall. Dig a shallow ditch along the upper side. The lower side is left open. The two sides will be partly open, and are closed by driving down stakes and banking straw against them, which is to be covered with earth. Leave an opening along the top for ventilation. This is as good a swine shelter as can be made, and requires little labor and material, as the walls are of earth.

Another good shelter is made by setting on three sides (north, west, and south, or east) a row of stout stakes four feet high, the corner ones being forked. Against these pile straight brush with the leaves on if possible, and cover this with earth. Place poles in the forks of the corner stakes, and on these make a roof of boards or straw, as directed for the other shelters. The bank of brush and earth should not reach quite to the roof, but leave openings for ventilation. If desired, a portion of the open side of these shelters can be closed in the same way that the other sides are closed.

Preparing Hay for Fuel.

R. G. NEWTON, DAKOTA.

As a fuel for the prairie pioneer, hay is the most easily obtained, but its consumption in a common stove is accompanied with several disadvantages. It burns out quickly, makes a litter in the cabin, leaves abundance of ashes, and fills the pipe full of soot. The first two disadvantages can be overcome by having the hay in a compact form. This is usually accomplished by twisting it up in bunches. To do this easily, the hay should be moistened with water, and thrown together in a heap. Pull a



Fig. 1.—PULLING OUT THE HAY.

small handful partly out, and twist it with both hands as shown in figure 1, thus making a rope of any desired size or length—about two inches in diameter and four feet long is the most convenient. Double up the rope or strand as in figure 2; twist the three strands together and push the ends through the loops as shown in figure 3.

A better method, requiring two persons, is with a tool shown in figure 4. Take a piece of half inch round iron about three feet long, bend one end to form a handle, drawing the other down to a point for a hook. Before turning the hook, slip on a round block of hard-wood and then a large washer.

Set a two by six-inch scantling in an upright position, either by fastening the upper end to joists overhead in a barn or shed, or by placing the bottom thirty inches deep in earth. Bevel the ends of a piece of the same scantling a foot long, and bolt it on the upright so that the centre of it will come about three feet and a half from the floor. Bore a hole through the two pieces with a half inch auger, as shown in figure 5. Place the handle in this hole as shown in figure 6, smearing it with some tallow or wagon grease. One person turns the crank and the other handles the hay. Take up a small armful of the moistened or green hay, hook a lock of it on the iron, and when the handle is being turned step back, allowing the hay to be drawn out by the twisting. When the rope is long enough catch hold of the end and twist it as hard as desired, then double and twist it as in figures 2 and 3. This gives a firm roll of hay; the harder it is twisted the longer it will burn.

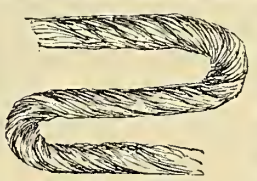


Fig. 2.—A STRAND.

By means of this device, one can make hay ropes of any length, of two or three strands, which can be used to throw over the hay stacks, fastening stones at each end, to prevent the tops of the stacks from being blown off. The handle, figure 4, can be made from an old wringer or similar machine if at hand. With a wooden handle on the crank it will turn more easily, and it will not blister the hands.



Fig. 3.—A TWIST.

The dryer the hay is before it is burned, the less soot it will form in the pipe. The Mennonites build their houses with four rooms, and a large brick arch in the centre (fig. 7), so that it will heat all the rooms. The walls of the arch are thick, and will hold heat for a long time. The arch requires filling only two or three times a day, and may be so constructed that the cooking is done on it at the same time. By having the arch open into one room, it prevents the litter from getting into the other parts of the house, while in the next room can be set a sheet iron casing or box in which to place dishes or utensils for cooking. If this iron box is well made and has a door fitted in, it can be made use of as an oven for baking.



Fig. 4.—TWISTING IRON.

Watch the Flues.

Nine-tenths of the destructive fires are the result of carelessness. It is difficult to understand why any careful farmer's buildings should burn unless set on fire by lightning. On the farm there are no fires for manufacturing purposes; fire cannot be communicated from one's neighbors; that class which furnishes incendiaries is lacking; and all household fires can be kept under the eye of the farmer and his family. The newspaper reports of the burning of farm buildings show that the fires can nearly always be traced to negligence, and in more than half the cases to faulty flues. The season is now at hand when all the occupied rooms will be heated, and the danger from defective flues is consequently great. Let there be no delay in examining all flues to make sure that they are perfectly safe. If any are found defective, repair them at once. The most dangerous place in a flue is the point where the pipe enters it. If the flue is not built from the floor up (a common way of construction once), this point is in the garret, and

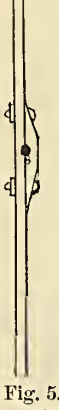


Fig. 5.

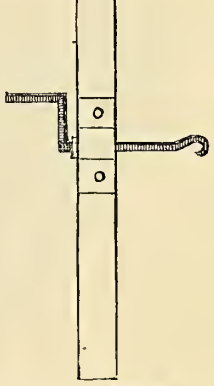


Fig. 6.

rarely noticed. Unless the pipe fits the opening very closely, sparks will escape, and falling upon the adjacent wood-work, made dry and combustible by the heat from the pipe and flue, will occasion a conflagration. At least twice every year the joints about where the pipe enters the flue, should be plastered, pressing the mortar firmly against the flue and into the crevice between it and the pipe. Winds, etc., so jar the house, that in the course of months the pipe will work out of the opening, unless well held in place by wires; a point which must be attended to. The mortar between the bricks of the flue may crumble and leave openings. Close these with fresh mortar. Make the flues safe, and keep them so. Inspect frequently. It is not generally known that wood exposed for a long time to a moderate heat, becomes very dry and inflammable, and will take fire with astonishing readiness. Look well to all points where flues and pipes are very close to wood of any kind. Even if there is a space of several inches between the wood and the pipe or flue, protect the wood by covering it with tin. Old fruit cans, by melting the solder and flattening the tin, will answer for this use. Carefully watch the flues.

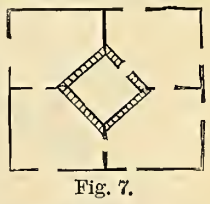
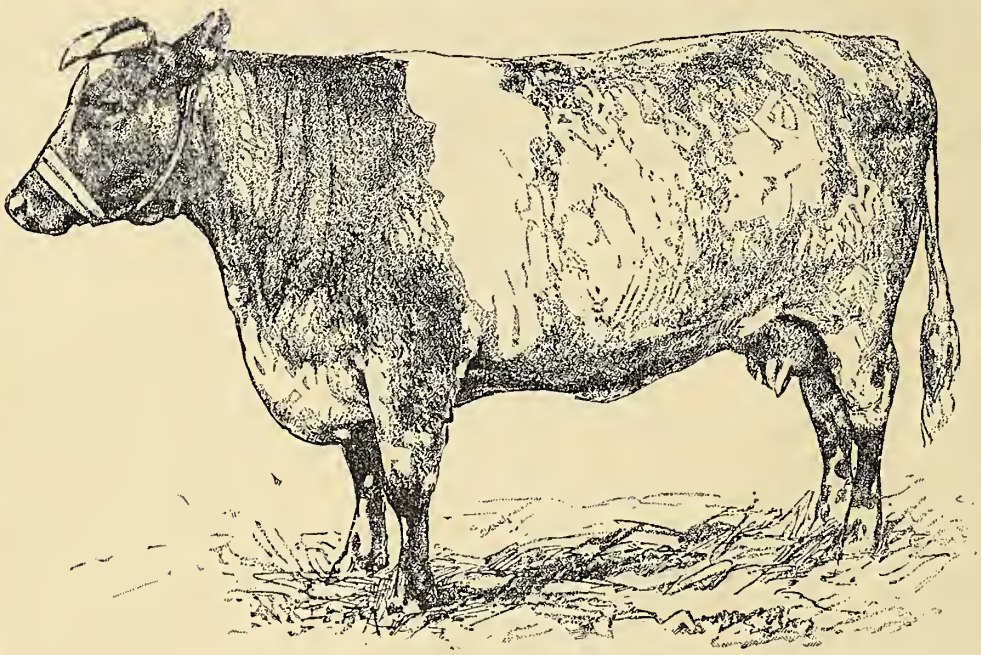


Fig. 7.

A Superior Shorthorn.

The accompanying engraving is a striking portrait of "Ringlet Fifth," one of the finest Shorthorn cows in England. It is difficult to conceive of much better beef animals than some individuals of this breed. They grow with astonishing rapidity, may be made ripe-fat at two and a half to three years old, at which time they have nearly their full size. They fatten evenly, and the beef is marbled admirably in many families—that is, it shows the "streak of fat and streak of lean," so much admired by butchers, and sought after by buyers, because it makes the meat so juicy and rich when cooked. The Shorthorns are the favorite stock of the West and of the Plains, and well they may be, for their grades of the first and second cross look almost like thoroughbreds, and with the hardiness of the native cows, they combine the quick growth and rapid fattening of the Shorthorn. When the Western farmers want milk instead of beef, he will really have little trouble to breed it, for the Shorthorn is as naturally a milk as a beef-producer, and all that is necessary is to encourage lactation from the first. Recent investigations collated by Mr. E. S. Tisdale, and read before a Dairy Conference at Gloucester, England, indicate very clearly that as bred for milk-producers, the Shorthorns are superior to all other breeds. He gives the following figures as to yield: Shorthorns average seven hundred gallons a year, Dutch (Holsteins) average six hundred and fifty, Guernseys four hundred and sixty, Jerseys five hundred and twenty. While as to quality the order is changed, thus the milk of the Guernseys averaged 14.09 per cent of solids, of which 4.80 was butter-fat; that of the Jerseys 13.6 per cent, of which 4.26 was fat; that of Shorthorns averaged 12.7 per cent, with 3.79 fat; while the Dutch showed an average of only 11.8 per cent, with only 2.97 per cent of fat in the tested milk.

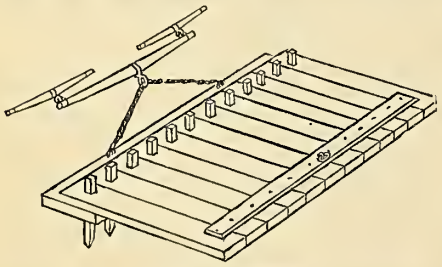


THE SHORTHORN COW "RINGLET FIFTH."

Re-Engraved for the American Agriculturist from the Agricultural Gazette, London.

A Clod Crusher and Smoother.

Among the home-made implements in use among the readers of the *American Agriculturist*, the clod crusher here represented seems likely to do good work. Its construction is simple; two-inch oak



A CLOD CRUSHER.

planks are pinned together with tree-nails, or spiked, the forward ends resting upon a broad plank of the same thickness, and a narrower one being spiked, or pinned upon the rear ends. The rear cross plank serves as a cleat or rave for holding stones or logs, to give additional weight. Harrow teeth, also of oak, or other equally hard and tough wood, are set in front. They are a foot long and six inches apart, with a slight backward slope, so as to move nearly upright. The implement may be drawn with one or two horses, according to the weight placed upon it, and the work to be done. The teeth may also be made longer or shorter, according to the ground. On weedy land it rakes off the weeds, which may be dumped by lifting up the rear end by a ring, or by a short rope attached to it. To secure this raking action, the implement must be drawn square, but if it be desired that it should clear itself of weeds, etc., it must be drawn obliquely, by attaching the horses nearer to one end of the draft chain. The dimensions are as follows: planks, four or five feet long; front cleat, eight feet long and ten inches wide; rear cleat, four inches wide; teeth, two inches through for ordinary use, and set six inches between centres. For very rough ground with stones and hard clods, roots, etc., the teeth should be stronger, say two and a half inches through, and eight inches between centres. The other parts to remain the same.

Is your Poultry House ready for Winter?

Cleanliness in all the details of the management of poultry is absolutely necessary to success. Unless there be perfect cleanliness, the fowls will not only be constantly infested and worried by vermin, but they will be liable to many troublesome and dangerous diseases which check growth, development and productiveness in the birds, and even cause death. This should prove, even to the most thoughtless person, that it does not pay to neglect the poultry in the matter of cleanliness.

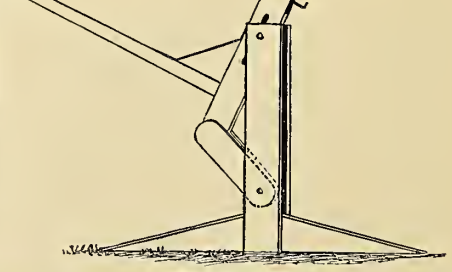
Now is the best time to make a thorough cleansing of the house, if it has not been done before. If the roosts and the nesting boxes are movable, as they should be, the work is much easier, and can be done much more thoroughly. Take everything from the house that is movable; burn the old nests to destroy the lice and mites, and then, with a broom, sweep down the ceiling and sides or walls; clean the floor thoroughly, and remove the droppings and other accumulations. Get ready some good stone lime, making a moderately thick whitewash. With a good brush go over the entire inside of the house, working the wash into the cracks and crevices. When the first coat is dry, if it is not heavy enough, go over a second time, and when this is dry—not before, let the birds occupy the house. Scrub off the roosting poles, and when dry, smear them well with kerosene. Whitewash the nesting boxes inside and out, make new nests of fresh, well broken straw, and give them a good dusting of Flowers of Sulphur, and place tobacco stems in the bottom of the boxes before making the nests. Scatter sand and air slacked lime liberally over the floors, and repeat the operation as often as necessary to insure pure air and cleanliness.

Which are the Best Fowls?

Which are the best fowls depends entirely upon circumstances; and what may be best for one man, may not be for another. Some raise the birds for pleasure and others mainly for profit, and of the latter class some wish eggs principally, while others desire the heavy weights. As there are now breeds which will meet nearly all requirements, one can make a selection to suit his wishes. It remains principally with himself, whether the flock proves profitable or not, as there is always as much in the food and care as there is in the breed. Where ornament and pleasure are mainly the object, we can recommend the White Crested Black Polish, which are handsome, attractive, and good. While they are largely bred and sold for ornamental purposes, they can readily be made to pay their way, at least some breeders claim that they pay them better than any other breed as egg-producers. They are not large-bodied fowls, but they lay good sized eggs and plenty of them. They are generally hardy and active, while their heavy crests prevent them from flying high, and they can readily be kept within bounds. For eggs principally, the White as well as the Brown Leghorns deservedly stand at the head of the list. We have invariably had good results from them, and under proper management others are sure to have the same good results. The great reason for so much disappointment with fowls as egg-producers, is not with the breed or the hens, but with their owner, who expects them to produce eggs at all seasons without giving them especial good care, attention and food. They must not only be fed liberally, and at regular intervals, but be protected during cold weather. In some localities it is desirable to have the building heated moderately, if a large one, and the winter is unusually severe. In most cases this is not necessary, as a well made house will generally afford sufficient warmth and protection. D. Z. EVANS, JR.

A Wagon Jack.

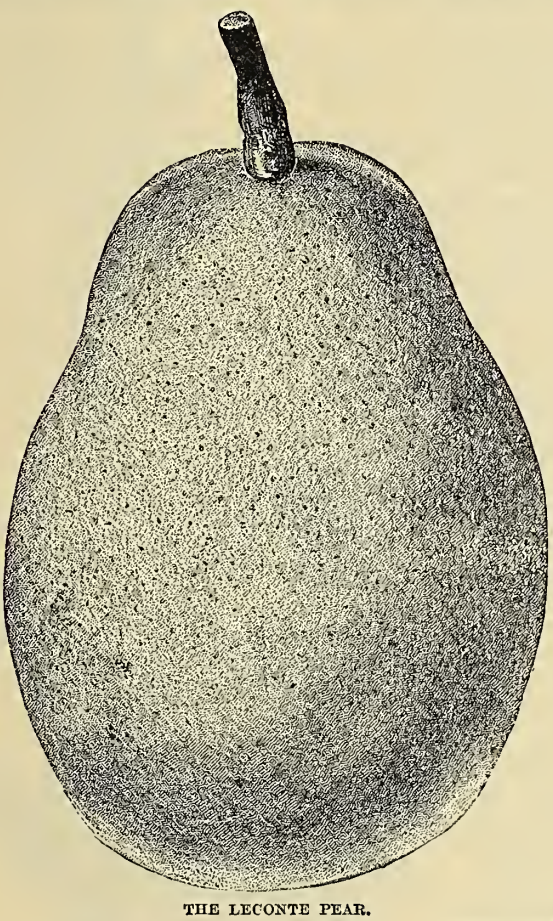
Mr. J. R. L. Dean, Greene Co., Ohio, considers his wagon jack, shown in the engraving, superior to any previously described in the *American Agriculturist*. The hoisting movement is a toggle joint. There are two upright pieces of the desired hight, firmly bolted to the base. The toggle joint is three and one-half inches wide, and snugly fits between the uprights. An iron hook is fastened to the joint for adjusting the jack to different hights. A pin through the uprights keeps the joint in position. An iron brace supports the handle. This jack is not as easily made as are some others, but the extra work of construction will be amply repaid.



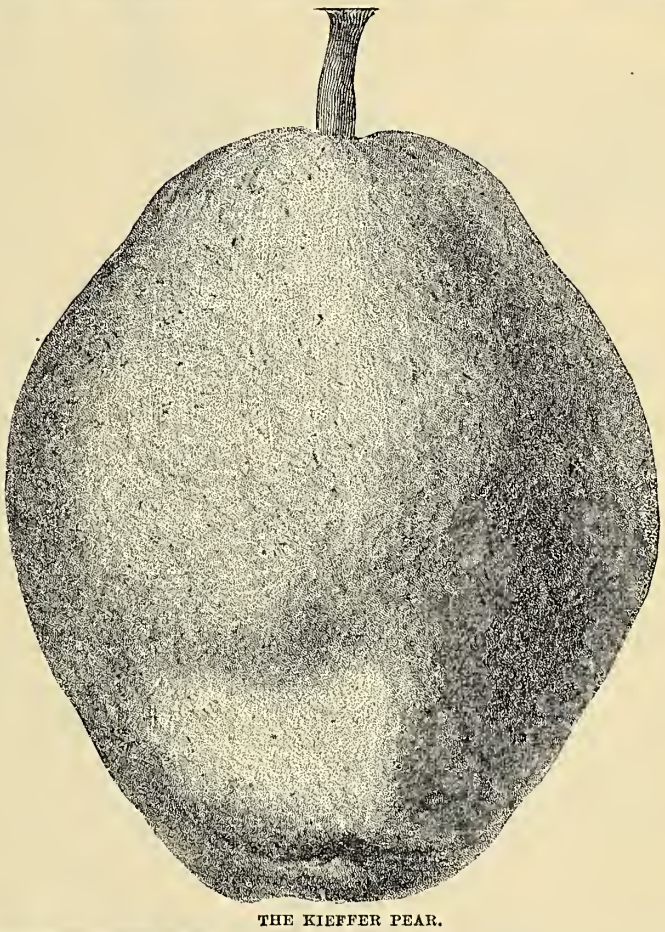
A WAGON JACK.

A New Race of Pears.—The Oriental.

The Chinese Sand Pear, *Pyrus Sinensis*, a speeies quite distinet from the common pear, was introduced into England from China early in the present century. In due time it found its way to this eountry, heing more or less planted as an ornamental tree, and specimens are still to be seen upon old places. It grows to the hight of twenty feet or more, and is vigorous and healthy. The leaves are large and shining, the flowers white, tinted with pink, followed by a somewhat apple-shaped, warty, russeted fruit, of no value except for cooking. About half a century ago, Maj. LeConte, a noted naturalist, bought a Chinese Sand Pear and sent it to his niece in Liberty Co., Ga. This tree grew to a large size, bore abundantly, but its fruit was unlike that of the Sand Pear, and of suffieiently good quality to attract the attention of nurserymen and orchardists as a market fruit. The tree was fouud to grow witb tolerable certainty from cuttings, and quite a number were propagated in this manner in Tbomas Co., Ga. The variety was named LeConte, in honor of the officer who was instrumental in introducing the tree. It is supposed that the tree whieh Maj. L. sent to Georgia was either a seedling of the Sand Pear, or an instanee of bud variation or sporting. There was shown at the Centennial Exhibition a very showy fruit from the farm of Peter Kieffer, near Philadelphia. The tree producing it was a seedling of the Chinese Sand Pear, but the fruit was so mueh superior to that of the original tree, that it was supposed to be the result of hybridizing tbat pear with some of the varieties of the common pear, and the fruit was named Kieffer's Hybrid. Other seedlings of the Sand Pear show that it has a marked tendency to vary from the seed, and tbat it is not neeessary to suppose that the Kieffer was the result of hybridizing. Wbile the other seedlings are inferior to the LeConte and Kieffer, some of them have received names, such as Garber's, Conklin's, and Smith's Hybrids—though probably not hybrids—and have been propagated to a small extent. They are ehiefly of interest as showing the tendency of the Sand Pear to vary from the seed, and the possibility of establishing a useful raee of pears, to which the name "Oriental" has been given by Southern nurserymen. It is a strong point in favor of these pears that, though the LeConte and Kieffer have beeu planted extensively, North as well as South, not an instanee has been reported in which the trees were attacked by blight or other disease. Experience with the common varieties has been very different, and in some cases most disastrous. The Orientals grow vigorously, bear early, and are abundantly fruitful. The engravings, from speeimens of aveiage size, show the relative shape and sizc of the varieties. The LeConte has a waxen yellow skin, with a crimson cheek in tbe sun. It is ripe in New Jersey the middle of August. Its quality is compared to that of the Vicar of Winkfield and the Duchess. Tbe Kieffer is of rich yellow color, with a bright red cheek, and a very showy fruit. It ripens about a month later than the LeConte. As to quality, we bave bad speeimens whieb we preferred to the Bartlett. Neither of these varieties can take a high rank as to quality, but if one has a tree, he is quite sure to bave fruit. For cooking, eanning, and drying or evaporating, they are valuable. If these varieties are worked upon quince or common pear stocks, they become diseased, and trees propagated from buds or grafts taken from trees on these stocks, are not to be relied upon. Those intending to plant these varieties, should insist upon baving trees uncontaminated by any "blood" of the eommon pear or the quince. The Southern journals show that the LeConte pear has created a furore, and the aeres that have been planted are nnmbered hy hundreds. We are glad to see this indieation of enterprise, and hope that those who have engaged in it bave not overestimated the demand. Improvement should be the next step, by raising seedlings from the best of the Orientals.



THE LECONTE PEAR.



THE KIEFFER PEAR.

Drawn and Engraved for the American Agriculturist.

Burless Chestnuts.—H. Bagley, of Greene Co., N. Y., sends us specimens of a peculiar ehestnut. The young nuts, instead of being inclosed, as usual, in a prickly involucre whieh ripens into the bur, are quite naked and exposed. The involucre, instead of being sufficiently ample to completely cover the young nuts, is reduced to a mere plate, only large enough to allow them a place to stand upon. The tree has a diameter of two feet at the base, and annually bears its crop of nuts exposed in this peculiar manner. We bave asked Mr. Bagley to send us some of the ripe nuts; these not being confined by the bur, should be much larger and rounder than ordinary ehestnuts.

Clear up the Forest Rubbish.

Forest fires are thought by those well qualified for judging, to be fully as destruetive to our diminishing store of timber as the axe and saw. The forthcoming volume of Special Forest Statistics by the Census Bureau, will contain a large number of valuable maps. Among these is one showing by colors the percentage of destruction by these fires in the wooded portion of the United States in a single speeimen year—1882. It presents a striking and suggestive picture, especially when we remember tbat, in the judgment of experts, the greater number of these fires are needless. The most frequent causes are earelessness in burning brush in neighboring clearings, in leaving camp-fires without thoroughly extinguishing them, which means something more than just kicking the brands apart, in running locomotives that have no spark arresters, in negleeting to burn off grass, ete., from the spaee occupied by the roadway of the railroads at a time of year when it is safe to do so, and last and chief of all, in leaving the rubbish of lumbering—tops, limbs, ete., wbere it helps start and maintain fires. Some authorities contend that all who own timber land should be compelled hy law to collect and burn all sueh debris, and to remove fallen limbs and dead trees from woods in which no lumbering is going on, in case they join woods owned by other parties. When we reflect that the damage done by these fires is probably not less than three hundred millions of dollars a year, and that it eonsumes that produet, which of all others, is hardest to replace, and yet is indispensable to the national welfare, we see how important it is that all practicable safeguards should be faithfully used. J.W. P.

A Fish-Destroying Plant.

Some items having appeared in the daily papers describing in an indefinite way a plant that destroyed the young in the Government fish ponds at Washington, we made inquiry of the U. S. Fish Commission as to the facts in the case. The editor of the "Fish Commission Bulletin," Mr. C. W. Smiley, promptly replied, referring us to notes on the subject, and soon after forwarded us a copy of an engraving prepared for the "Bulletin." The plant in question is the Common Bladderwort, *Utricularia vulgaris*, an aquatic plant, common in England, and in a modified form in this country. Besides this species there are some half a dozen others, so closely resembling it in manner of growth that a description of one will answer for all the others. The Bladderworts are mostly floating plants and nearly rootless. Their leaves are submerged and very much divided. An erect stem, six inches or more high, bears several yellow or purple flowers, which are two-lipped with a spur, and resemble those of a Snapdragon. The leaves are furnished with numerous small bladders, which were formerly supposed to be for the sole purpose of floating the plant while in flower, but which are now known to have other uses. The engraving shows a plant of the Common Bladderwort, reduced in size. The flower-stalk in the real plant is from six to twelve inches high; the immersed stems, from one to three feet long, are covered with finely divided leaves, bearing numerous bladders. These give the genus its name, which is from *utriculus*, the Latin for a little bladder. The observations of Mrs. Mary Treat, of New Jersey, as quoted by Darwin, and others, show that these bladders, instead of serving as floats, are generally filled with water and provide the plant with food by trapping vast numbers of animalcules, small larvæ, worms, etc. One of these bladders, magnified, is shown at the left hand of the engraving (3). Without giving a minute description, we may say, that these bladders are about one-tenth of an inch in diameter, and are most admirably contrived for entrapping small animals. The opening of the bladder usually pointing downward, is guarded by an elastic valve so arranged, that its edge yields to the pressure of small creatures from without and admits them, but it only opens inwards, and an animal once caught can not escape. Projecting from the orifice are long, slender, branched hairs, called "antennæ," which serve to attract the small animals and guide them to the entrance to the bladder. Those who wish to know more of the structure of these bladders are referred to Darwin's "Insectivorous Plants," where they will find the evidence that the creatures caught in the bladders decay, and afford nourishment to the plant. The past summer, Mr. G. E. Simms, Jr., of England, was hatching perch and roach from the spawn in an aquarium. Discovering that many of the young fry were dead, he investigated the cause. Upon lifting a young fish, he found that its head was fast in a bladder of the Bladderwort; other fishes were held by the tail, and in some cases the head and the tail of a fish were caught by two distinct bladders. A bladder, holding a young fish by the tail, is given on the right hand side of the engraving (4). Professor Moseley, Oxford University, examined the specimens and confirmed Mr. Simms in his view of the cause of the death of the young fry. Professor Moseley communicated the facts and specimens of entrapped fry to the U. S. Fish Commission, and the matter is under investigation by Mr. Smiley. It is important to know what kinds of fry are liable to loss from this cause, and also whether all of our species of Utricularia are equally dangerous. Hatching ponds may be easily kept free of the plant, as it floats and may be raked out. The case is interesting, as showing that every scientific fact, however insignificant it appears when first established, may have a very important practical bearing.



PORTION OF BLADDERWORT AND MAGNIFIED PARTS.

Watering Plants.

Probably the most important matter to be observed in growing house-plants is that of watering them. The cultivator should know just when to water, and to give it where it will do the most good. Amateur florists often exhibit much poor judgment in watering. It is the habit of some to keep the soil about their plants constantly soaked with water, and they wonder why they are not thrifty or healthy. These cultivators do not stop to consider that such treatment is unnatural, and will have an effect contrary to what is desired. There are those who resort to the opposite extreme, and keep their plants all the time in a perishing condition of dryness, which is even worse than if they were watered to death. If we will observe how judiciously Nature distributes the sunshine and shadow, the periodical rains, and the refreshing dews, we will learn an important lesson. Animal nature is very much like the vegetable in this respect. A pot, or other receptacle in which plants are grown, should be porous; glazed, or painted pots, ought never to be used where plain, unglazed pots can be obtained; all non-porous pots of tin and similar material, should be disearded. Plants growing in them can never compare in health with those that have the advantage of plain porous pots. There should be a hole of sufficient size in the bottom of each pot, to allow the water to drain off, and to pass away as soon as possible. Placing a few pieces of broken crocks, or charcoal, in the bottom of the pots will facilitate a rapid drainage, as good drainage is essential to the growth of strong and healthy plants. When plants require water, it will be indicated by a light, dry appearance of the top of the soil, and if watered when in this condition, it will do the most good. Give water only when in this condition, and then copiously, giving them all they will soak up at the time, then withhold water until the same indication of their want of it again appears, and apply it freely. Unless plants are in a very dry atmosphere, as in a warm parlor in winter, they will seldom require watering. In summer they should be closely watched, and if exposed to wind and sun, they will require daily watering, to keep them in a flourishing state. When plants are suffering from drouth, the leaves will droop, frequently turn yellow, and drop off prematurely; this can be avoided by timely attention to the growing plants each day.

In summer, watering in the cool of the evening will be followed by the best results, for it will give the plants time to take up and assimilate the moisture necessary to their life, and being completely charged with water, they will be prepared for the hot sun and drying winds of the next day. J. S.

Another New Raspberry—The "Rancocas."

Like nearly all other valuable raspberries, the Rancocas is a chance seedling. Mr. Albert Hansell, of the town of Rancocas, N. J., discovered in a most unfavorable locality, a bush which appeared to present so many good qualities, he was induced to try the effect of giving it a better chance. As the result the plant was propagated as rapidly as possible, and several acres were set with it to supply fruit for market; thus the variety has been tested on a large scale. This fall the plants are placed on the market by the Chase Nurseries, who claim for it an earliness equal to that of any other variety. According to Mr. Hansell, he commenced picking the Rancocas this year on June 21st, having made his last picking of Sharpless strawberries on June 19th. Other claims are: It is as hardy as the hardiest, yields as well as the most productive, and in size is equal to the largest good market berry, being uniformly larger than the Brandywine. The engraving gives the size and shape of the fruit. The principal point in a market berry is its firmness, to allow it to be shipped. "As a shipper, it is perfect." This is a strong claim to make, but it is supported by the statement that "the fruit has been shipped in quantity from Philadelphia to Boston, arriving there in perfect condition." Mr. Hansell states that in his plantation for market, he does not use stakes or trel-


THE RANCOCAS RASPBERRY.

lises, but after heading the fruiting canes back to two and a half feet from the ground, he ties "three or four of them together at the top, so as to make a good arch, which renders them self-supporting." The sum of the desirable qualities possessed by the Rancocas red raspberry is expressed thus: "The busy man's berry. The lazy man's berry."

What is Sphagnum?

The suggestion last month of a new use for sphaguum—that of bedding for animals, has brought out the inquiry—what is sphagnum? Sphagnum is the name given by the ancients to the peat mosses, and is used by botanists of the present day to distinguish these from other mosses. There are in the United States more than a dozen species of sphagnum, but practically, in considering their uses, we may regard them as one. The engraving of one of the common species will give an idea of the appearance of these plants. They have numerous short branches, thickly covered with minute leaves, which are beautiful objects to examine with the compound microscope. These mosses grow in wet places, and in such numbers as to cover large tracts, and form peat bogs. In these the mosses grow in close contact, the tops of the individual plants only being visible. The surface of the bog is of a pale yellowish green. As the moss grows, the plants increase in hight, while their lower portions gradually decay and form peat. The moss when taken from the bog is saturated with water, and is allowed to drain and dry before it is baled for transportation. Even when moist and exposed to the air, the moss does not readily decay, or even become sour, and it retains its elasticity in a remarkable manner. It is unequalled as a material for surrounding the roots of trees, and plants in general, and is much employed by nurserymen and florists in packing their stock for transportation. Gardeners make use of sphagnum as a medium in which to grow some kinds of orchids and other plants which are natives of bogs. They also use it to mulch the surface of the soil in pots, and when dried, rubbed up and sifted, it is a most excellent material for covering fine seeds. For these and other uses, sphagnum is in demand, and as those who live at a distance from localities producing it, are obliged to purchase it, there is already considerable traffic in the article. Its use as a bedding material is likely to rapidly increase.



SPHAGNUM, OR PEAT MOSS.

GIVE THE PUMPKIN A CHANCE.—The pumpkin is an outcast, crowds itself through the world, and gets along as best it may. We object to its being so despicably treated. For dairy cows the pumpkin is highly valuable, and in no way objectionable. It is rich in fat and sugar, tending to increase the yield, while its yellow color adds to the appearance of the butter. A well-known authority claims, that a ton of pumpkins is more preferable for dairy cows than two tons of ruta bagas, and several times as many white turnips. The hard shell varieties can be kept well on into the winter, if stored in a dry place with hay or straw packing. There are worse things for farmers to have in a field than sixty-pound pumpkins.

The Relation of Plants to Health.

JAMES SHEEHAN.

Plants at present are more generally cultivated in-doors than formerly, and they may be seen in almost every home. The cultivation of plants in dwellings is decidedly a modern custom—at least to the extent to which it is now practised. One who now contemplates building a dwelling house, plans to have included with the other conveniences of a first-class home, a suitable window for house plants. As the cultivation of plants in dwelling houses increases, the question is raised by some: "Are not plants injurious to health, if growing in the apartments in which we live and sleep?" We know of persons who would not sleep in a room in which a number of plants were growing, giving as the reason that the amount of carbonic acid gas given off by the plants, is detrimental to health. Now this view is either true or is not true. We have made a particular study of this matter, and speak from experience. Over ten years of my life has been spent in the greenhouse, among all kinds of plants; I have frequently slept all night among them, and never observed it to be in the least detrimental to my health, but, on the contrary, I have never felt better than when among plants. Gardeners, as a class, those who have spent their lives among plants, show, so far as we have observed, a longevity equal to, if not exceeding that of any other class who are engaged in any of the vocations usually regarded as healthful. We must admit, however, that we have never known of a case of chronic rheumatism to be benefited in the least by working in hot-houses, on account of the perpetual dampness of the air. On the other hand, we know of a number of persons afflicted with various other diseases, who have been noticeably benefited by working among plants, perhaps it was owing to the health-giving bodily exercise required by the work, rather than the supposed health-giving effects of the plants themselves; we think the result was due to both. An eminent physician cites a case in which his sister, aged fifty years, was afflicted with tubercular consumption, her death, as the natural result of such a terrible disease being expected at any time, but being an ardent lover of plants and flowers, she was daily accustomed to move among her plants, of which she possessed a large number, in her sleeping room as well as many other specimens in beds outside. Her friends reproved her for sleeping in the same room with her plants; but the years came and went, and she was still found moving among her flowers in her eightieth year, surviving those, who many years before predicted her immediate demise, as the result of her imprudence. Who will say but what the exhalation from her numerous plants increasing the humidity of the atmosphere in which she lived, prolonged her life? The above is but one of many cases, in which tubercular consumption has been arrested and sometimes wholly cured by the sanitary effects produced by working among plants for a considerable time. We know of cases in which druggists, ministers, and students from school, were compelled to relinquish their chosen vocations on account of failing health, resorted to the nursery or hot-house. In almost every instance restoration to vigorous health was the result.

We contend, therefore, that this old superstition that house plants are injurious to health, is nothing but a myth. The amount of carbonic acid gas at night discharged from two dozen large plants, will not equal that exhaled by one infant sleeper, as has been demonstrated by scientific men. Because a few old cronies stick to the absurdity that "plants are awful sickenin' things," it is no reason why sensible people should be at all alarmed by it. [The more recent discovery that plants in flower produce ozone, a form of oxygen noted for its activity in purifying the air, and destroying the various disease germs, is an additional reason why plants should not be excluded from the sleeping rooms and other parts of our dwellings. — ED.]

What shall be done with the Front Yard?

Every one who has just completed a new house, finds himself confronted with the question of the best arrangement of the front yard. The same question should present itself to those who have long had front yards and have allowed them to fall into neglect. If one has grounds of several acres to improve, he naturally calls in the services of a landscape architect, but where there are but a few rods, the area is often left to an ignorant jobbing gardener, whose chief idea of improvement is to make crooked walks where straight ones would be in better taste. Rather than trust his front yard in such hands, the owner had better undertake the task himself. In most localities it will be too late to execute the work properly this fall, but the plan may be decided upon, and all the grading and shaping may be done in readiness for planting next spring. With a small area there is great danger of undertaking to do too much; this should be avoided, and simplicity and neatness be aimed at. The accompanying plans, by Elias A. Long, will suggest the manner in which the planting of a small area may be varied. These are intended for the smallest village and town front yards, but the same designs may be adapted to much larger areas. In all of these, the house is reached by a walk running straight from the street along the boundary. Great care is needed in selecting materials for planting small areas. A tall-growing tree would be out of place in such a yard, while shrubs of low growth, and dwarf evergreens, are well suited to such grounds. The chief point should be to secure as much grass as possible. In figures 1 and 2, small shrubs and flowers are employed, and in figure 1 a special ornamental bed is provided for; this will be more satisfactory if planted with coleus and other "foliage plants," than with flowers. In the design, figure 3, the marginal border may be planted with perennial flower roots, making such a selection as will afford a continuous bloom all the season. Three choice shrubs occupy the border in the centre. Figure 4, having more grass, will appear larger than figure 3. The marginal border here may be planted with perennials also. The border surrounding the bay window should hold climbers for the window, and low-flowering shrubs. The beds, cut in the lawn, may have each a dwarf evergreen; if the surface of these beds be planted with Ivy, the effect will be very fine. The surface between the beds in all the plans may be of grass, or gravel; the former is preferable. Even in very small lots a good effect is secured by making the beds farthest from the walks with a slightly elevated surface; a rise from front to rear of from six to twelve inches in the highest part will be sufficient.

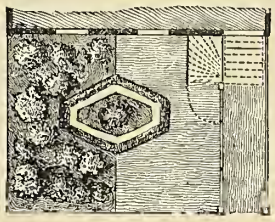


Fig. 1.

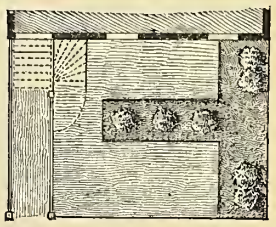


Fig. 2.

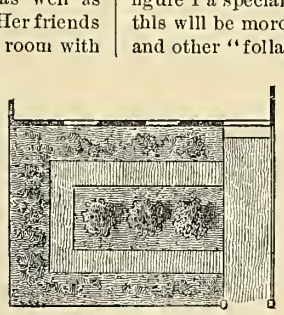


Fig. 3.

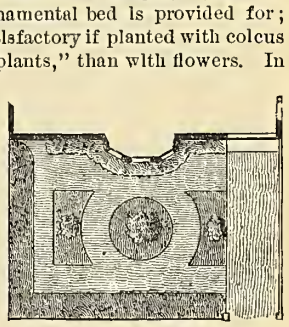
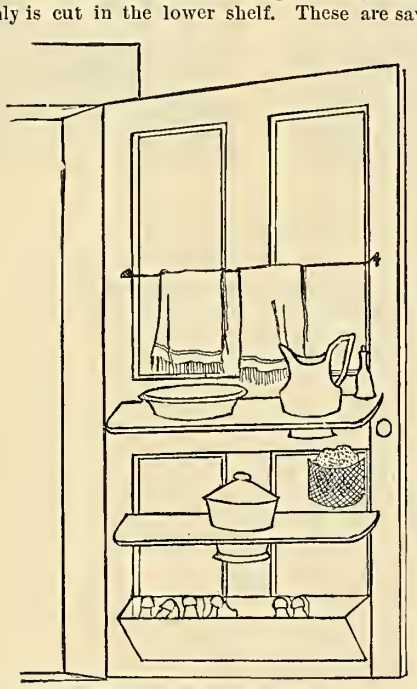


Fig. 4.



Closet Door with Shelves for Toilet Articles.

In small bed-rooms space may be economized by dispensing with some of the usual pieces of furniture. If the room has a closet opening out of it, we may do without the washstand, and fit up the closet door with shelves for holding the toilet articles as shown in the engraving. A shelf wide enough to hold wash-bowl and pitcher, soap-dish, and a few bottles, is fastened by small iron brackets to the door, at the hight of an ordinary washstand. Below this is a second shelf for holding the slop-jar. The shelves are made of inch boards, rounded at the corners, and painted to match the door. Places for holding bowl, pitcher, soap-dish, and a bottle are cut in the upper shelf, and one only is cut in the lower shelf. These are sawed



INSIDE OF CLOSET DOOR.

out as they formerly were in the old-fashioned wash-stands. It is necessary to have the shelves firmly fastened; otherwise the bowl, pitcher, etc., would be likely to slide off when the door was opened and closed. Above the upper shelf is a towel-rack made by slipping the ends of a heavy wire through screw rings in the door, and bending it in to the proper shape. At one side of the shelf may be a small rack for brushes, and below it a pocket for the sponge. Beneath the lower shelf is a shoe rack, which may be made of boards or of heavy ticking. If the closet door is not a very strong one, or not well hung, bowl, pitcher, and slop-jar, made of papier maché, may be used instead of China. They are very light, and will last a long time. They come in pretty patterns and look quite neat.

Can't You Sleep?

Many persons find themselves troubled by wakefulness. Some resort to the Hydrate of Chloral and other drugs to produce sleep. Such drugs, if their use is once begun, have to be continued, and in increasing doses, and every effort should be made to induce sleep in some other way. Among the methods that have been suggested, is the stopping of all study or serious reading, half an hour before bed-time, and to take sufficient exercise with dumb-bells or Indian clubs to produce a warm glow of the body, and then jump into bed. In winter sleep in a flannel night-gown, and between blankets instead of cold sheets. The attempt, when in bed, to read some amusing novel may be made, in order to divert the mind from the wakefulness. A second method is, instead of reading, to repeat a poem with which one is familiar. Another plan is, to draw in a long, slow breath by the mouth, and force the breath out through the nose, imagining that the two currents can be distinctly seen. The mind is to be kept fixed upon the operation of breathing, and the endeavor to see the currents as they are expelled. One of our editorial associates finds relief by wetting a cloth with cold water and placing this across the forehead, and binding it in place by means of a towel. It is worth while to give either of these methods a thorough trial rather than to resort to drugs of any kind.

Autumn Styles.

"Partial culture seeks the ornate, perfect culture, extreme simplicity." If this be true, we may congratulate ourselves that we are making rapid advances toward refined and cultivated taste in dress. It has been noticeable in the various fashionable resorts the past season, that the toilets of ladies of all ages have been marked by extreme simplicity. Cambrics, ginghams, satines, and the infinite varieties of white fabrics, have, as a rule, been plainly made, often with a gathered, belted waist, and tucked skirt. These are worn through the morning, and in the afternoon changed for a fresh dress of the same material, or perhaps a light wool of some pretty shade. With them are worn ribbons of some contrasting color, which will harmonize with the dress. Not broad sashes, but ribbons two or three inches wide tied around the waist, and finished with a bow and long ends; or made bows may be scattered here and there among folds and drapery. Another marked change is the absence of jewelry. Even those who are fortunate enough to possess precious stones of great value, wear few at a time, and these in a plain setting. A handsome gold button, or stud, with a single precious stone, fastens the high linen collar, and a bow of ribbon with long ends completes the dressing for the neck. If jewelry is worn at all, it is not in sets as formerly. A long bar pin of gold, or of some fancy design, is used when a pin is needed. Ear-rings are seldom seen, except single stones of value. Bracelets are worn to take the place of linen cuffs, but they are small bands of gold, silver, or jet, with simple fastenings. Chains, lockets, indeed showy ornaments of any kind, are not worn by persons of refined tastes.

Is there anything new for early fall? One of the leading "men milliners" of Paris says that "the man or woman who can invent anything absolutely new in ladies' toilets, has a fortune at command." Certain it is, those who can look back thirty or forty years, must see in the present styles a revival of those then worn, and not only is the style of making similar, but it is said the materials then used, which have been laid aside for years, are to be reproduced this fall. Among them are the handsome and durable Irish poplins, the soft delaines, and useful mohairs and alpacas. The indications are, that two or three fabrics will still be combined in one dress, as the importations show plain and figured goods to match. Many woolen stuffs have raised figures in velvet. Some richer goods have raised flowers outlined with beads. These are used for waists, and bands for trimming the skirts. Plain velvet waists will still be worn. Jerseys are used for morning and home wear only, except those made of silk, and extra fine and heavy wool, costing from eight to fifteen dollars each. Stripes are to be popular, even broad stripes of contrasting colors, as dark-red with green, ecru with brown, gray with black, etc. Blocks and squares are pretty for children's dresses. A dress of bright, rich red, over a skirt of red and dark-blue blocks, with dark-blue ribbons, is effective for a young miss. All the dark rich colors will be worn, also blue-grays, and moss and bronze-greens. The variety in woolen goods is so great, that one can suit herself as to color, quality, and price. Silk is little used for street wear, although a silk skirt is useful with an over-dress of wool. These are made in plain designs for the street, but great care is used that the corsage shall fit perfectly, and that the drapery be graceful. If the waist is round, there should be a belt ribbon, with bow in front; it should be long with high darts, short shoulders, and high standing collar. The sleeve is high, rounded up on the shoulder, but not gathered into so much fulness as of late. It is well never to adopt any extreme in fashion; it is always short-lived. Bustles will remain, and the fashion which has prevailed in thin dresses, of two large loops and ends at the back, made of one width of the dress material, will continue for silks and soft wools. Basques will retain their place with or without vests. Polonaises also remain in favor. The back is in many cases like a princess dress, requiring only a draped front. Skirts of heavy cloth will be plain and full, without flounces; a broad band of velvet or Astrachan cloth, will trim the bottom and sides. For lighter goods, bias bands or tucks are still in favor. ETHEL STONE.

Protecting Food from Ants, Flies, Etc.

L. D. SNOOK, FLA.

During a large part of the year, flies, cockroaches, or Croton bugs, and ants, are very troublesome in the pantry. I recently saw a cheap, simple affair

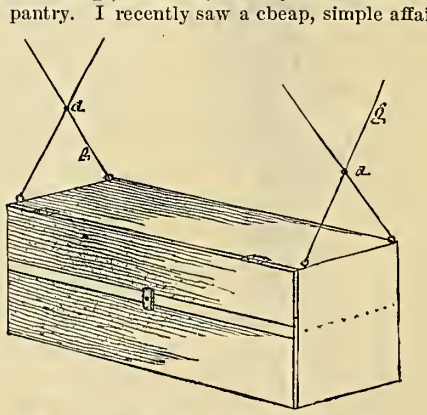


Fig. 1.—THE HANGING SAFE CLOSED.

for keeping these pests at bay, and was so well pleased with it that I give the plan of construction. It consists of a box, two and a half feet long, one foot wide, and eighteen inches high, with a shelf dividing it into two compartments, as shown in the engravings. Figure 1 represents the safe closed, and figure 2, the same open. Each compartment is provided with a light board door. The upper one, when open, rests against the wires which support the safe. The doors are kept closed by the use of a wooden button or other device. The

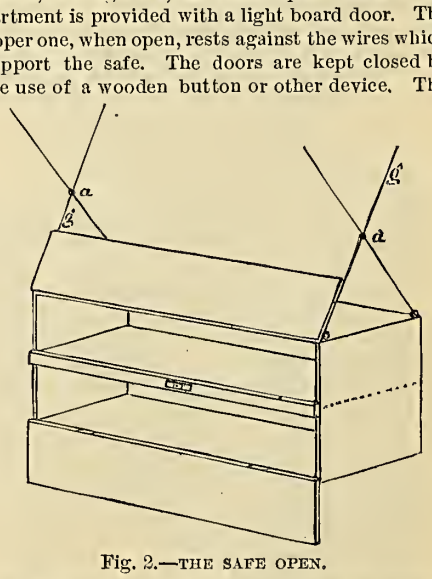


Fig. 2.—THE SAFE OPEN.

box is held in position by four wires, g, g, attached to the ceiling overhead, and by crossing them the box will swing but very little. Where the wires cross at a, a strip of cloth is wound and securely tied, these are kept saturated with turpentine, kerosene, or other fluid offensive to the insects. By the use of this safe the housekeeper can keep insects of all kinds away from the food. The cost is very little for the materials or the time required to make it.

Useful and Ornamental Household Articles.

The bird-cage converted into a hanging-basket, as seen at the left of the engraving, makes a very pretty ornament for the sitting-room in winter. An old bird-cage can he used, by giving it a coat of paint, or regilding it. Get a tin pan about two inches in depth, make a number of holes in the hottom of it, and also in the bottom of the eage, fill the pan with rich earth, and plant some light, running vine in it; set it in the bottom of the eage, and fasten on the top by means of stout wire, as the ordinary fastenings will not be secure enough.

The music rack in the lower corner, is formed from an old-fashioned wash-stand, in the manner fully described in the Household Department of the September number of this year.

A pretty cover for a flower pot may be made from a Japanese fan. Cut the end sticks off, and sew the paper parts together. Run a thread through the upper part, and draw it to fit the pot; also run one through the end of the sticks, where the rivet was inserted, to keep the bottom in place. The color of the fan should form a pleasing contrast with that of the plant and flowers in the pot.

A common cigar box aids in the ornamentation of an ordinary clock, as seen in the illustration. Cut a hole in the bottom of the box, large enough to admit the face of the clock, cover the box neatly with plush, cut the opening in the plush an inch smaller than the one in the box, slash it around, and draw it through, and glue it to the inside of the box. The lid should be covered separately, and fastened on the box with small hinges, or by means of pieces of muslin glued on the inside, to serve as hinges. Fasten the clock securely in the box. The vine may he either embroidered or painted; if embroidered, it must be done before the covering is put on. Cover a small shelf for the clock with the same material, and finish it around the edge with fringe.

Now that the days for fans are over for this year, the Japanese fan catch-all is in order. Cover one side of the fan with satin, using muslin on the other side. Make a pocket of satin, and sew it on the side of the fan covered with the same material. This forms the catch-all, shown in the lower corner. Finish with a large bow on athe handle.

Catering for the Sick.

MARY WINCHESTER.

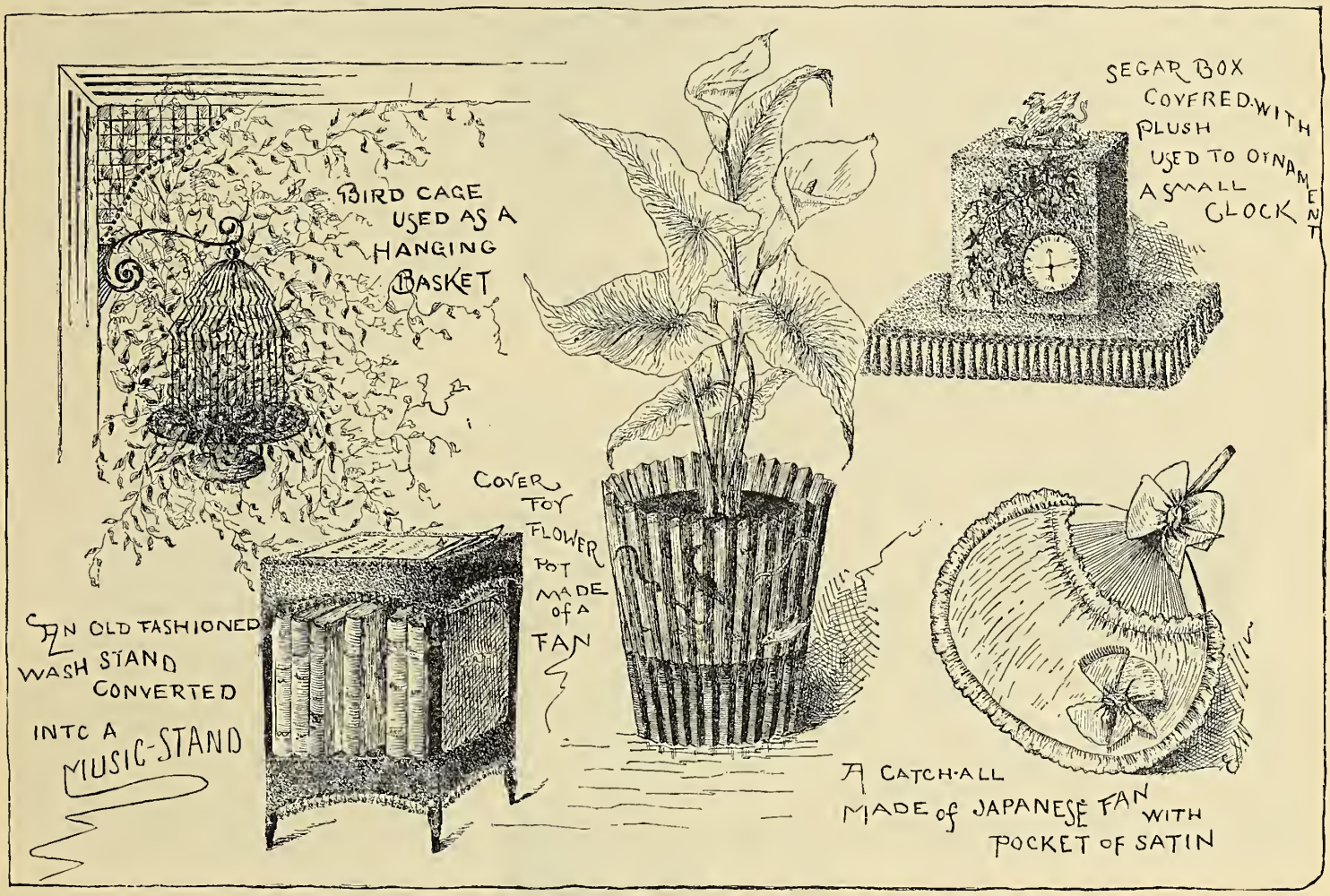
"How I wish I knew what to make for Mrs. Ellis that would tempt her appetite," said I to Aunt Lizzie, who was visiting me; "she has been a very kind neighbor, and it would be a pleasure to send in something she would relish if I only knew what. Her girl is well-meaning enough, but not exactly adapted to take care of a sick person, and her little daughter is too young to do more than wait on her mamma, as well as she knows how." For the benefit of those who have felt as I did at that time, I repeat some of Aunt Lizzie's suggestions.

That day we made milk-porridge by taking a half pint each of new milk and water, and letting them come to a boil in a saucepan. Then two teaspoonfuls of flour were rubbed smooth in a little cold water, added to the boiling milk and water, and allowed to cook an instant, salted slightly and a little nutmeg grated over the porridge.

A small gilt-band china bowl was filled with this porridge, and covered with a doiley; a bit of salt codfish was pulled into shreds and laid on an old-fashioned glass sauce plate; a cracker split and toasted, and all arranged on a tray covered with a fresh damask napkin. Little Bessie undertook to carry it across the way with many injunctions, and Robbie as body-guard to open and shut doors and gates. They returned bringing the good news that "Mrs. Ellis ate every drop and crumb, and said she felt ever so much better." But without going further into details with regard to my neighbor, I will add a few acceptable dishes.

Chicken Panada.—Boil a young chicken half an hour in a quart of water, then pound the white meat to a paste in a mortar with a spoonful or two of the broth. Season it carefully with salt, add more of the broth and boil a few minutes. It should he of such a consisteney that it can be drank, though rather thick. The remainder of the broth, with a little rice added, will do for another meal.

Egg Gruel is at once food and medicine. Some have great faith in its efficacy in chronic dysentery. Boil a pint of new milk; heat four fresh eggs to a light froth and add to the milk while it boils; stir together thoroughly, but do not let it boil again; sweeten with loaf sugar and grate in a small nutmeg; add a little salt. Use half of it while it is warm, and the other half in two hours or so.



USEFUL AND ATTRACTIVE DEVICES FOR THE HOUSEHOLD.

Drawn and Engraved for the American Agriculturist.

Wine Whey for a patient convalescing from fever is an acceptable drink. Heat half a pint of new milk blood-warm, pour in one glass of wine, and let it remain undisturbed until the milk curdles. When the curds settle, strain it and let it cool. A spoonful of rennet water hastens the operation. It may be made palatable with loaf-sugar and nutmeg if the patient can bear it. Sherry is the best wine for the purpose.

A Blanc-mange is easily prepared, and very nutritious. To a quart of milk in a farina kettle or tin pail, set in a kettle of boiling water, add half an ounce of well washed Irish moss, and let it cook in the milk until it thickens; then strain, sweeten, and flavor, if the natural moss taste is not liked.

Oat-flour Jelly may be eaten either warm or cold as preferred. To a pint and a half of boiling water in a double boiler, add an even teaspoonful of salt. Mix a cup and a half of sifted oat-flour with half a pint of cold water to a smooth paste, and stir it into the hot water; when well mixed, cover, and let it cook two and a half hours.



A Living Head-dress.

JOHN R. CORYELL.

One of the pleasant eharaeteristics of the South American Indians is their fondness for pets. There is scareely an animal, from the savage and treacherous puma to the most gentle and affectionate bird, that is not domesticated among the half-savage natives of the great continent. With a love of animals they have a remarkable faculty for exeiting love in return, and therefore do not confine their pets in eages to pine and drag out a miserable existenee, but give them full liberty, trusting to affection alone to keep them from straying away.

As is quite natural, that lively, knowing little trickster, the monkey, which is found in great numbers in South America, is a prime favorite with the lazy but good-natured and fun-loving Indians. Hence every village is full of the misehievous ereatures, ready to play their prauks upon the first stranger who comes along. Among the monkeys, however, the Marmoset branch of the family comes first in the rank of pets. The Marmoset is a tiny, delicate, soft-furred creature, scareely more than half a foot long. It is very shy of straugers,



Fig. 1.—A PAIR OF MARMOSETS.

but gives its whole heart to its friends, receiving and bestowing earesses with a tender eonfidence which never fails to work upon the soft-hearted, simple folk of those tropics. Moreover, it lacks the almost satauic love of mischief which is such a conspieuous trait of its cousin, the monkey.

A South American lady who kept a pair of these dainty pets, often tells with tears in her eyes of their great love for each other. For some time the marmosets lived together a perfect model of counubial bliss. Where one went, there also went the other. In short, they acted like a pair of the most devoted human lovers. Oue sad day the husband died. The bereaved wife could not comprehend her loss. By every teuder little artifiee she tried to coax her lost love back to life, and as eaeh effort failed she would utter a plaintive little moan and gently stroke the glossy fur of her dead lord. At last the truth seemed to eome to her, aud she eeased her efforts and sat beside the little body with a mournful dejection pitiful to see. The body was removed, but she made uo other sign of eoueiousness than to put her hands before her eyes, and thus she remained, refusing food until death came to her too, and as the good lady always says: "I hope they are together uow."

The pretticst and most valued of the marmoset family arc the Tamarins, and of these the one called Deville's Midas is foremost as a pet, particularly with the Peruvian women, who lodge the delicate, pretty little thing in their back hair, where it stays as in a haven of refuge the moment a stranger comes near. It is exeeedingly shy at first, but under the uniformly kind treatment it receives, soon becomes familiar and makes itself thoroughly at home. It is uot as intelligent as the monkey, but is quite as active, and has a very delicate sense of humor too, though it seems quite devoid of malice. It is said that out of pure wantonness it will sometimes take up a prominent position on its owuer's head, and pretend to engage in an active huut through the hair for the sort of game which sometimes is found in hair not earefully tended. While oecupied in this way it chatters at the speetators as if inviting partieipation in the joke. If the truth must be told, the Midas, when kept by the native women, has no need to pretend to huut for game, the chase is a real one, and probably satisfactory to both womau and Midas.

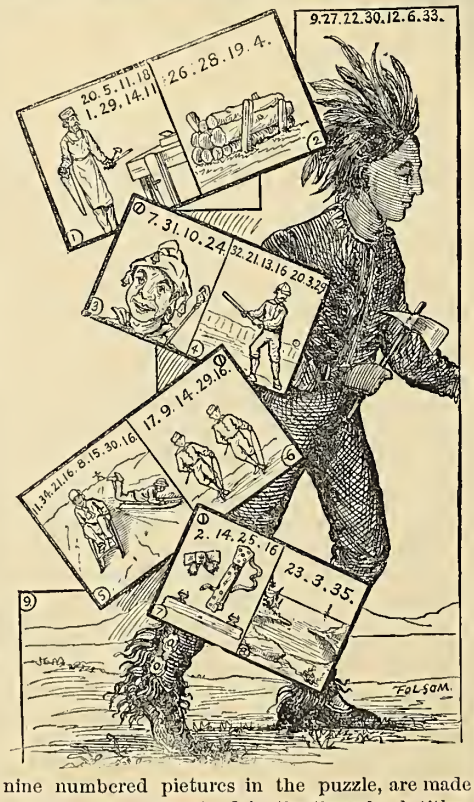


Fig. 2.—A MIDAS AT REST.

When seen skipping aloug the branches in the forest, the Midas, and indeed all the Marmoscts, look more like squirrels thau monkeys. They are iu fact, however, far enough removed from the squirrel order. They uot only laek the chisel-like teeth of the squirrel, but they have the great distinguishing mark of the monkey—four hands.

The Marmoset has not the prehensile tail, whieh is the peculiarity of most South American monkeys, aud is seen in no other moukeys. The little loving Marmoset is found only in South America.

An Illustrated Numerical.—The whole contains thirty-five letters, and makes iu the order uumbered: a work by Dickens, one by Hawthorne, and one by Sir Walter Scott. The uames of the



nine numbered pietures in the puzzle, are made with the letters eontaiued iu the three book titles.

A Red Letter Day.

AGNES CARR SAGE.

A circus was coming to town, and for weeks great red and yellow posters had adorned walls and fences, blazoning forth such wonderful sights, that every boy and girl iu Summerville was half wild with excitement. Over aud over again they counted their pennies saved up against the eventful day; they picked berries and ran of errands to add to the fund, aud almost calculated the hours, uutil the trained dogs, huge elephants, educated monkeys, hair-raising aerobats, the fat woman and the dwarf, Mr. Merryman, the funny clown, and all the other marvels should appear in their midst. And at last the long expeeted morning dawued, hot and sultry—as eircus days are apt to be, and when at an early hour the little folks rubbed the sleep from their eyes, and ran to peer over into Longstreet's meadow, there were the white tents which, mushroom-like, had sprung up in a night; the gorgeous caravans gleaming gaily in the first rays of the rising sun, and all around the delightful bustle of unpaeking and arranging preparatory to the afternoon performanees. But one pair of gray eyes had no sparkle of anticipation in them that day, and one childish faee was very sober, as lame Benny Fenton gazed out of the side window of his cottage home, and listened to the tramp, tramp, of the hearty, healthy, eountry lads, floeking in the direction of the faseinating circus grounds. Benny was as poor as a ehurch mouse, and knew his widowed mother could never spare him the twenty-five cents admission fee, even if he eould make his way through the erowd on his little crutches. So he tried hard to read his favorite books and forget the event that was turning the quiet village topsy-turvy, but "misery loves company," and he was very glad when his friend and neighbor, Dolly Dutton, who was as poor as himself, came in to sympathize and console, for she was a light-hearted little soul, and her eheerful smile soon drove away the boy's frown as she said: "Never mind, Benny, I'll bring in my knitting this afternoon, and we will have a good time on the doorstep, watching the people pass by, and the wind is blowing right this way, so we can hear the musie beautifully, and that will be much better than nothing, you kuow."—"Yes," assented Benny, "but Dolly, I do so want to see all the eurious animals in the menagerie, especially the hippopotamus. I have been reading about it and spent three days learning to pronounce it, but I can't imagine exaetly how it looks."—"I would rather see the 'Flying Sylph,'" said Dolly, who had studied the hand-bills. "She rides three horses at onee, and flies through the paper hoops like a bird."—"It must be all lovely!" sighed Benny, "though there is no use thinking about it," but at that moment a loud shouting aud raeing was heard without, and both children uttered a startled cry, as ou the window ledge, suddenly appeared a eurious little figure, and a small, pitiful brown face was pressed against the glass.—"What is it! oh! what is it!" screamed Benuy, falliug back in his ehair; but brave Dolly hastened to open the window, and take the object in her arms. She was not an instant too soon, for a large stone eame whizzing through the air, grazed her arms, and fell with a loud erash in the middle of the floor of the room.

"It is a poor little monkey," she said, "and those cruel boys are trying to stone it, but they shan't have it to tease," and she gently smoothed the rouud, brown head, which cuddled down on her shoulder, as though asking for protection, while the frightened little ereature ehattered mournfully.—"How cunning he is!" said Benny, now all animation, "and do look at his scarlet coat, and hat, and feather! He must have run away from the eireus and beeu chased down here."

By this time the small yard was besieged by a party of large, rough youths, who loudly demauded the monkey, saying that they "wanted to have some fun with it." But Dolly only clasped the trembliug animal tighter and closer as the rude voiees grew more threatening, and Benny, though pale and frightened, advaneed to the window,

shook his head at the crowd, and declared they would never give him up for their cruel sport.

"We'll soon make mince-meat of a little shaver like you, and have our prize whether or no," shouted one larger lad, starting to climb in at the window, while the crowd prepared to follow their leader, and it might have gone hard with the brave little pair, as well as the poor animal, if a tall man, followed by a black French poodle, had not suddenly appeared upon the scene, ordered the ruffians to desist, and knocked loudly at the cottage door. Leaving the monkey in Benny's arms, Dolly, still pale and trembling, hastened to open it, and was reassured by the kindly smile of the new comer, who said, "I hear you have saved some of my property for me, and I have come to take the runaway home."—"Please walk in, sir," said Dolly, dropping a quaint old-fashioned courtesy, and she conducted him to the neat little room where Benny was keeping guard over the miniature gentleman, who was chattering like a dozen magpies, although his pursuers had beaten a hasty retreat.

"Well, master Jocko!" exclaimed the visitor, as the monkey sprang joyfully to meet him. "So you thought of taking French leave, did you! and would likely have been killed, had it not been for this kind little lady and gentleman!"—"Oh! please let him stay a little while longer," pleaded Benny, and Dolly's beseeching eyes said the same.

"Perhaps you would like to see him ride," said the man, and to the unbounded delight of the children; he called up Phil, the French poodle; instantly Jocko leaped on his back, and round and round the small apartment they went on a lively gallop, the monkey holding on by the dog's curly hair, and seeming to enjoy it as much as the spectators. Then Phil went through some of his accomplishments, such as jumping over a cane, standing on his head, and performing a "Highland Fling," with the utmost gravity and sedateness, while his master, who proved to be no other than Mr. Merryman himself, told such funny stories and jokes, that the children were in continual peals of laughter, while the crowd without pressed against the window to catch a glimpse of Benny's circus."

"I never saw anything so cunning in my life," gasped the boy, as exhausted with laughing he lay back in his arm-chair; and Mr. Merryman rose to depart, saying: "Well, you must both come up to the tent this afternoon, and see Jocko and Phil in their other tricks."—"We can't," said Dolly sadly, "for our mother cannot spare the money. Then turning aside, Mr. Merryman took from his pocket two blue tickets and handed them to Dolly, saying: "Those will admit you both, and may perhaps be a slight reward for saving Jocko from his persecutors, I will see that you have seats reserved for you directly in front," and before they could utter their thanks, he had shouldered the monkey, whistled to Phil, nodded a gay "good bye," and was walking rapidly up the road. Mr. Merryman was better than his word, for he sent the prettiest little carriage, drawn by two tiny Shetland ponies, no larger than Newfoundland dogs, to convey Benny to the grounds; and of course Dolly rode with him in grand state, the envy of all the girls and boys in the village, who trooped merrily after the dainty equipage. Benny's face was a picture, and Dolly nestled with delight among the soft cushions. And once within the magic tent, what a wonderful afternoon they passed; even the molasses lemonade, and odor of sawdust and orange peel seeming delightful, for it was a glimpse into a new world, and fortunately they could not see behind the scenes. How they admired the beautiful horses in their gay trappings! how they held their breath during the daring feats on the trapeze! and how loudly they applauded when Phil and Jocko came dashing into the ring. Oh! it was a red letter day indeed in the sombre lives of these poor little ones, who had so few of the pleasures of childhood; and one they will live over and over again in time to come. And when at length the entertainment was at an end, and the little chariot stood waiting to take them home, Mr. Merryman came to shake hands and bid them good bye. He smiled at their rapturous delight and shower of thanks, and said: "I am glad you have enjoyed it; and always remember to take the part of the weak as you have done to-day. Kindness to either man or beast brings its own reward."

Boating and Canoeing as Recreations.

Sea-side resorts, such as Coney Island and Rockaway, are not the only places to which New Yorkers betake themselves for a few hours of fresh air and cool breezes. There are at the commencement of Long Island Sound several charming retreats where, to the beauty of the quiet water scene, is added that of trees, shrubs, and grass. We here reproduce from drawings furnished us by the Park Commissioners, a spirited engraving of one of these favorite resorts, viz.: Oak Point, as seen by one of our editors in his frequent drives about the country in search of information for the *American Agriculturist*. One visiting this point on any day in summer, will find book-keepers and salesmen in their four-oared shells, engaged in friendly contests. Others in frail-looking craft ply the paddle in canoe races. All find in broad chests, strong arms, and a healthful glow of faces, that an occasional holiday at the oar and paddle overcomes the ill effects of confinement to the desk and salesrooms. Besides this, friends of both sexes are interested in amateur boating and the holidays have their social features. There is probably no more complete exercise to call into play the muscles of the whole body, than to tug at the "ashen sail." It is a form of exercise in which young people in the country may engage more frequently than they do. Boat clubs in rural neighborhoods will not only benefit active members, but their meetings will form occasions for the gathering of their young friends, and add to the social opportunities of which there are none too many in our rural life.



OAK POINT DURING THE BOATING SEASON.

Engraved for the American Agriculturist.

The Doctor's Talks.

"Tell us about Flies," writes one young correspondent. "Where do they come from, and where do they go in winter? Are there different kinds of flies?"—While some naturalists think that our house flies are the same as the house fly of England, and the rest of Europe, others regard them as different. Singularly enough, none of our naturalists have studied our house fly, and observed its transformations, and all that we know of the life history of this very common insect is from observations made in Europe. Flies, like most other insects, have a larval or maggot state; when the maggots are full grown they pass into the pupa or chrysalis form, from which (in England in fourteen days) they come out as the perfect insect or winged fly. It is pretty well known that house flies pass their early life as maggots in manure, and, as most are aware, are more abundant in the neighborhood of stables than elsewhere.

FLIES DO NOT GROW.

I have more than once heard persons speak of seeing young flies in the spring, evidently thinking that the small flies they may meet with, are young individuals and will grow to their full size. When the flies come out of the chrysalis, they are as large as they ever will be, and if some are smaller than others they are different kinds of flies. The same is true of moths and butterflies.



SPORT FOR US, BUT DEATH TO THEM.

Drawn (by W. M. Cary) and Engraved for the American Agriculturist.

THE FOOT OF THE FLY.

It is well known that flies can walk up a smooth pane of glass, and along the ceiling with their bodies downwards without falling. The foot of the fly, when examined by a powerful microscope, is found to have numerous hairs upon it, each with a little disk at its end. It is thought by most naturalists that the fly can use these disks as a boy uses a leather sucker, to enable it to cling to smooth surfaces. The eyes of the fly are very large in proportion to the size of the head. The microscope shows that these are not simple eyes, but curiously made up of seperate facets, each of which is really an eye. The two compound eyes of



TEETH OF A FLY.

the fly are made up of about four thousand simple ones. Human beings have only two simple eyes.

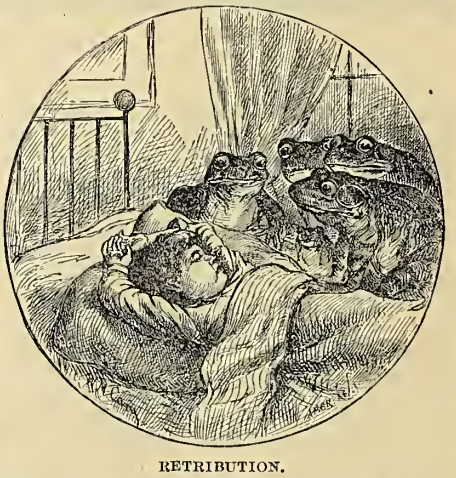
THE PROBOSCIS OF THE FLY.

The so-called trunk or proboscis of the fly, which, when not in use, is bent up under the head, is really a tongue, with a knob at the end. When the fly comes across anything sweet, this knob opens and spreads out two flat leaves, which enables the insect to lap up liquids. These leaves are rough like a rasp, and with them the fly can tear delicate surfaces; it often disfigures the covers of books by scraping off their polish. It also uses these rough leaves on our skin, and we say "the flies bite." According to an English naturalist, flies really have teeth. I give his engraving in which the teeth of one lip of the house fly are shown, of course greatly magnified. The three largest objects with rough upper edges are the teeth. These are not of bone like the teeth of the higher animals, but of "chitine," a peculiar substance of which the hard parts of insects consist. A large share of the flies die at the end of the warm season, but enough to keep up the stock hide themselves in nooks and crevices, and there pass the winter. They come out of their hiding places on the return of spring. The blowfly, the cheese-fly, and others are very different in habits from the house fly.

Frogs by Day and Frogs by Night.

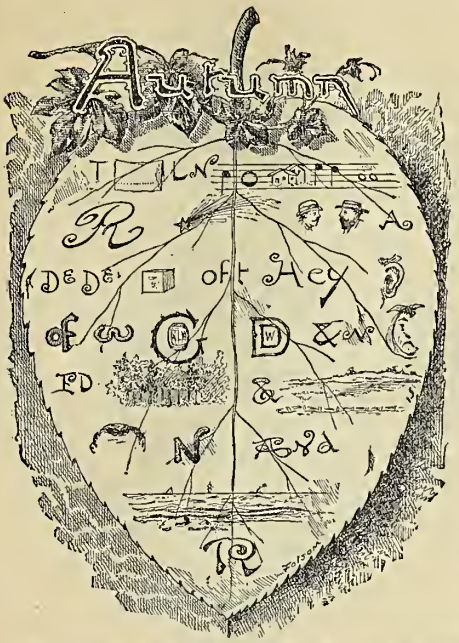
Charlie and Eddie were two little boys who lived in the country. Near their home was a fine stream which contained plenty of nice speckled trout. One bright morning the two boys started with their poles and a box of worms to try their luck at catching some of the pretty fish. And over the hill and down in the meadow they trudged until within sight of the brook, which they hailed with shouts of delight, and anticipations of a big surprise for mother. "Hurrah!" said Charlie, as he threw himself down on a rock to bait his hook; "just wait and see if I don't get some of those speckled beauties!" But he did not know the difficulties attending it. After tumbling into bushes and over logs, throwing their lines in here and there, they tried in vain to get near the big holes where they were sure father used to catch such beauties. But whether the trout were too shy or the bait not quite right, certain it was that they failed to get a single bite. Further on they found a lot of cattle standing just at the place where they wanted to make another trial. The cows stood coolly switching their tails to brush the flies off their backs. It was useless to attempt to fish there. In the mean time Eddie lost his hooks in a sunken log in the bottom of the stream, and had to make the best of a bent pin for a hook. Greatly discouraged they wandered further on to a pond near by. Here they found the water very low—the sun having nearly dried it up. However, they threw in their lines—when in a moment Charlie exclaimed! "Ed—I have a bite!" On pulling out his line, what was it but a big bull-frog! Charlie's eyes grew as large as saucers, as he exclaimed—"Frenchmen eat 'em!"—"But we are not Frenchmen" said Eddie, "and I don't think mother would like the ugly things." But Charlie had found new sport, and quite as interesting as trout fishing to these small boys, whose energies were now bent on "frogging." So as soon as they spied a frog floating with its nose out of the water, they would throw the line towards him, to invite him to make a jump for the bait. In this way they caught quite a number. Finally Eddie saw a huge frog sitting on a log near the bank. He tried to coax him by tickling his nose with the bait, but Mr. Froggie was much too dignified to bite, and only said "plunk! plunk!" without so much as stirring. At last Eddie, determining to get him, waded out in the mud and water, reaching, grabbed him in his hands, and amidst kicking and struggling, managed to bring him in triumph to shore. The boys by this time having a big string of frogs, and feeling tired and hungry, started across the fields for home, now and then picking up an apple, and eating it as they walked.

On reaching home they marched straight to their mother, who laughed heartily at the result of their day's sport. She said "I don't want them, but you can ask Jane if she'll cook them for you." The boys, in great delight, took them to the cook, and holding them up with much pride, asked her to cook them, saying, "Frenchmen eat them!" But Jane, who disliked frogs above all things, exclaimed in horror—"It's a Frinchman that ates them you say, the hathens—the Turrks, and is it me that would be arfter cooking the likes of 'em. Throw 'em to the pigs—sure a Dutchman wouldn't eate them!" That night, when Eddie was in bed, he saw hosts of frogs sitting on the counterpane, bewailing the loss of their friends. One said "where is old 'Chime'!" another, "where is my little 'toddy!' my darling 'cheehunk!' and pretty 'plunt!' and oh where, where is dear old 'daddy'." One great fat frog cried out: "What shall we do to the cruel boy that hooked our loved ones!" Then all the others said "Plunk, plunk," and Eddie was so



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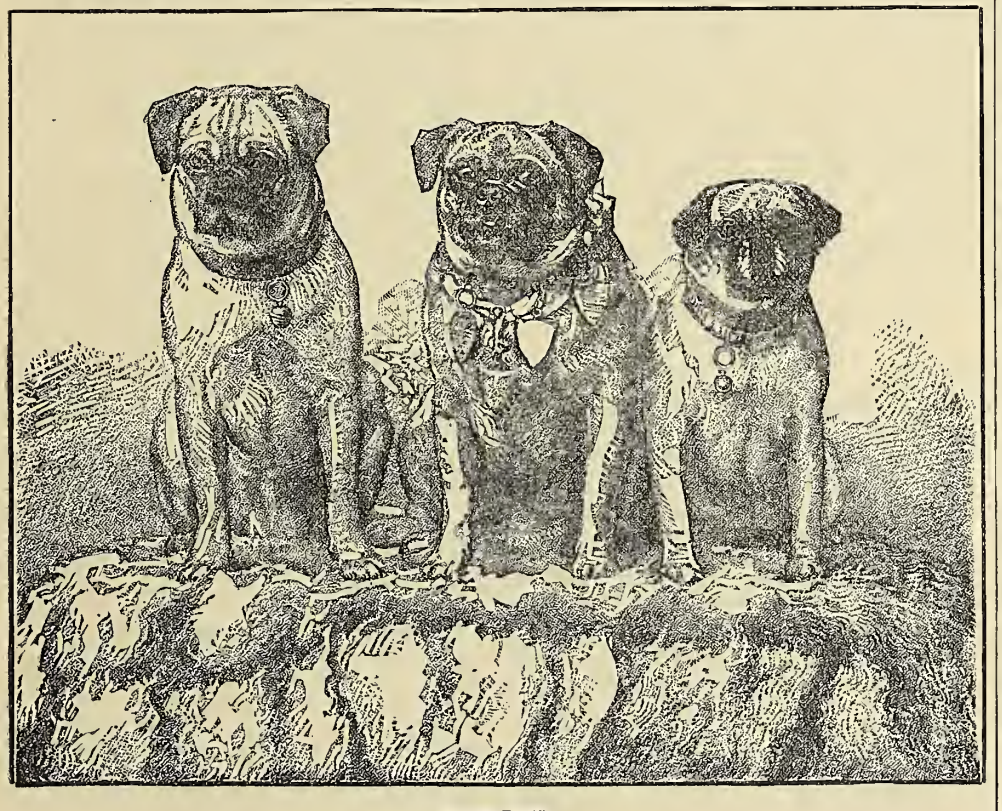
frightened that he sat up with a start, to find that he had only been dreaming, and that daylight was peeping in between the window-curtains. The reader will observe, from the engravings, that the frogs in the dream were much larger than those in the stream. We may imagine that they felt their importance, when asking for information about their near relatives, and looked as big as they could while seated around upon the counterpane.



An Illustrated Rebus.—The above rebus contains two familiar lines of poetry by Bryant, specially suited to this sad season of the year.

Our Gallery of Dogs.—Pugs.

Last month we gave a spirited engraving and description of the Scotch Colley. We herewith present illustrations of typical prize pugs. Pug dogs are not over wise, but extremely loving and make devoted pets. They are consequential to the last degree, and as full of self-importance as young Bantam cocks. How amusingly dignified they try to appear. They know very little of bravery. A gamy cock will quickly decide any differences against a pug, and drive him from the poultry yard. The Dutch have a special fondness for the pug, and in Holland this old breed is a common one. The pug has a round head and a high skull, with a very short and broad muzzle. With the brow prominent and beautifully wrinkled, and the nose turned up, the pug obtains a facial expression peculiar to itself. The eyes are large, dark, and full, with a queer squint, and the ears, small, black, lying close to the cheeks. The neck of the pug is strong, the chest square, legs short and straight, and the tail curled close over the hip. Master Pug's coat is short, close, and soft, and very variable in color, the pure apricot fawn being the most aristocratic. A well defined black mask is upon the face, and a line of the same color extends along the spine. This "stripe" is a good characteristic of a fine pug. If twelve to fifteen inches high, and weighing ten to fifteen pounds, when full-grown, the pug is large enough for all the purposes for which it is tenderly reared.



PRIZE PUGS.

Engraved for the American Agriculturist.

Shall we Destroy the English Sparrows?

The English Sparrow (*Passer domesticus*), was introduced into this country about a quarter of a century ago, to exterminate the much dreaded span-worm, then devastating the city parks and lawns. Sixteen years ago we made, from life, a fine engraving of these English sparrows, and stated that the price for the imported worm-destroyers was four dollars per pair, and in many cases persons who had the birds upon their premises were unwilling to part with them at any price.

The sparrows did their work very effectively, it being estimated that a single bird consumed nearly three hundred caterpillars per day. But the impudent, noisy, and quarrelsome sparrows have been very prolific in their new home, and with six broods a year, they have increased rapidly, and driven out many of our finest songsters. They came to stay and to occupy the land. The feathered deliverer has proved a nuisance, possibly greater than the insect enemies they were imported to destroy. This bird engaged the serious attention of the American Union of Ornithologists at its October meeting in New York, and after the presentation of convicting evidence from all parts of the country, it is declared, by the highest bird court in the land, a positive pest to all concerned.

Methods will now be perfected for the wholesale destruction of this bird nuisance, which may lead to its ultimate extermination. It may be that one extreme will follow another, and in the extermination of the sparrow we may offset one depredation with another equally bad that may follow. A war upon the sparrows may be wise, provided it is no carried too far. We are all prone to underestimate the value of birds, as shown by the treatment of the much maligned crow, and it will be well to move slowly upon the sparrow, and make notes by the way. There is a balance to be maintained between the bird and insect world. We had good reason for importing the English sparrow, and he did well the work assigned him. Instead of the cry "the sparrow must go," why not try to restore the equilibrium by reducing the numbers of this invited guest? This will doubtless be the upshot of the whole matter. The English sparrow, now so abundant, cannot be annihilated in a single season.

A Visit to the Founder, and for 14 Years Editor of the American Agriculturist.

A large portion of Ocean Co., N. J., is occupied by the "Pine Barrens." The traveller on the New Jersey Southern Railroad, soon after leaving Red Bank, notices a marked change in the face of the country, and by the time he reaches Manchester, he is in the midst of what a superficial observer would say were properly called "Barrens." The soil, if white sand and yellow gravel can be so called, is covered by stunted pines, scrub oaks, and other small trees, with an undergrowth of shrubs. The vegetation has left but a shallow stratum of mould upon the surface, and the country is, to appearance, most inhospitable to agriculture. This tract extends to the ocean at Barnegat Bay, and is well known to botanists as producing many plants not found elsewhere north of the Carolinas, and some occur that are peculiar to this locality

A few miles from the ocean, in Dover township, about a hundred miles from New York, is the summer residence of the venerable founder of the *American Agriculturist*, Mr. A. B. Allen, who has some fifty acres directly upon Tom's River, a stream, the beauty of which warrants a better name. I had not met Mr. Allen in a number of years, and were surprised to find that time had made scarcely any change in his tall, erect figure, in the elasticity of his movements, or in the genial expression of his face, as he welcomed us in our unexpected visit. The portrait on page 483, while it satisfactorily presents his features, can not give the color of the hazel eyes, or the fair, slightly florid complexion; these, with an ample forehead, as yet unfurrowed by wrinkles, make him appear much younger than he really is. Indeed, he carries his eighty-two years more lightly than many do their burden of three score and ten. Impressed by the unpromising appearance of the country we had recently passed over, I asked:

"What could have induced you, Mr. Allen, with your well-known love of agriculture, and taste in rural matters, to locate in such a barren region?"

"I shall convince you that barrenness is in appearance rather than in reality, but the inducement was solely its healthfulness. A member of my family, a confirmed invalid, found in former visits, that the climate agreed with her better than that of any other locality, and about fifteen years ago I bought this place of about fifty acres. We have a perfectly pure atmosphere; even after the most sultry days the sea-breezes are cool at night. We have a clear and beautiful river for boating or bathing, and the ocean is close at hand. Then the roads are fine and dry; even directly after a rain there is no mud, which is a great comfort."

"But the utter barrenness of the soil?"

"Look at these trees. The place, when I bought it, was an abandoned peach orchard, and every tree here, save the red cedars, and a few others that came up from seeds, I planted since I came. Look at the lawn, is not that a fine, close turf?"

A drive about the neighborhood, and through Mr. Allen's own place, showed that the soil, notwithstanding its appearance, will respond to cultivation. The place adjoining Mr. Allen's is a large dairy farm, upon which heavy crops of corn had just been cut, and the pastures bore a satisfactory turf. Trees, both deciduous and evergreen, of course planted without manure, had made an am-

ple growth. The soil is well adapted to market gardening, it is early, and the ease with which it may be worked, is a point greatly in its favor.

"Was your father a farmer?" I asked our host.

"My paternal ancestor came from England and settled in Massachusetts, purchasing a considerable tract of land in the town of Roxbury. He carried on a combined business in merchandise and agriculture. I was born in Hampshire Co., Massachusetts, in 1802. My father afterwards moved to New York, where he continued his double occupation as before, and also educated his sons."

"When did you go to what was then the West?"

"I moved to Buffalo, N. Y., in 1833, where I devoted myself to agriculture, especially to the breeding and raising of domestic animals of all kinds. In 1841 I went to England for the purpose of studying its agriculture, and also to select and import choice domestic animals, with a view to improving those already possessed at home."

"What induced you to become an editor and to start the *American Agriculturist?*"

"Solely a desire to improve our agriculture. I had recently returned from England where everything relating to agriculture is so different. The thoroughness of the cultivation was in marked contrast to our own. There was in England a great interest felt in the improvement of cattle and other domestic animals, while there was very little at home. Thinking to serve the interests of agriculture, in conjunction with a younger brother, Richard L. Allen, the publication of the *American Agriculturist* was commenced in the City of New York, though we still continued our farming at Buffalo. The first number of the paper was issued in April, 1842. Finding it inconvenient to attend to editorial duties so far from the place of publication, I moved to New York near the end of the year, giving up my farm to my brother. I have since lived in the city, or in the country near by. At the end of the first year R. L. Allen retired from the *American Agriculturist*, and I assumed the entire editorship. I conducted the paper alone until 1849, when I was again joined by my brother."

"Why did you cease to edit it?"

"Wishing to devote ourselves to other business, which required our sole attention, we, after publishing it for *fourteen years*, sold the *American Agriculturist* to a gentleman who had been with us for a few years as an editorial employé. The subsequent history of the paper you know better than I."

Knowing that Mr. Allen had been a pioneer in the manufacture as well as the sale of agricultural implements, I remarked: "In your long experience you must have witnessed great improvements in agricultural implements and machines."

"When I commenced dealing in them, no implements of improved kinds were kept in the City of New York. The only things of the kind then offered were a few coarse cast-iron plows, a common, rough kind of harrow, and shovels, hoes, etc. I visited Worcester, Mass., and other places where improved implements were made, and filled my warehouse with them. My brother was associated with me soon after I had commenced the business. The trade rapidly extended all over the United States, to the West India Islands, and to South America. Others followed the example, and the agricultural implement business of the city is now very large and is constantly increasing, especially in exports. We erected a large factory in Brooklyn, where we made all the ordinary implements, and after mowing and reaping machines came into general use, these were also largely made by us."

"Did you not make some inventions yourself?"

"I took out a number of patents, but these were mainly for improvements in reapers and mowers, and also some were for improvements in plows."

"Was not the importation of high class live stock, especially cattle, a part of your business?"

"Yes, and besides our own, considerable importations of improved breeds of domestic animals of all kinds, friends in England frequently consigned to me improved stock for sale. Indeed, this has taken place down to a very recent date."

"Have you visited Europe since 1841?" "I made quite an extended tour of the continent in 1867, finishing off with a turn through England and Scotland, where I again studied their agriculture."

Mr. Allen retired from business a number of years ago. He passes the summers on his farm in Dover township, N. J., and the winters at Flushing on Long Island. His continued good health and a vigor quite unusual in an octogenarian, are no doubt due to an active participation in the outdoor work of his place. He knows, and can give the history of, every tree on his grounds. He still continues to plant trees, knowing that some one will gather their fruits or enjoy their shade. Still more remarkable than the activity of body are his unimpaired mental energy and retentive memory. Few young men keep so well abreast of agricultural progress, or are so well informed as to new methods and appliances. In relinquishing the editorial chair, Mr. Allen by no means abandoned writing, for he has been, and still is, a contributor to various journals, including the one which is proud to acknowledge him as its founder, and for which he still has something of parental regard. Though he writes upon agriculture proper, and various rural topics, his special field is that of domestic animals, especially neat cattle. There is probably no other person who has so thorough a knowledge of the early importations and the history of their progeny as Mr. Allen. In view of the fact that a large share of our beef cattle must be drawn from the ranges of Texas, where the redundance of horns, derived from the Mexican cattle, still prevails, Mr. Allen long ago advocated the introduction of males of some of the polled breeds, in order to get rid of the enormous horns, which greatly increase the difficulty and cost of the transportation of the cattle to market. The suggestion was an eminently practical one, and the occasional appearance of polled grades in the herds, shows that some have been wise enough to act upon it. The present general excellence among the swine of the country is largely due to the writings, and especially to the importations, of Mr. Allen, who was among the first to introduce the improved Berkshire breed, and to point out its value to our farmers. These are instances in which the labors of Mr. Allen have been of national importance, but his efforts for their improvement have extended to all other kinds of domestic animals, and these are still continued.

Our visit to the founder and first editor of the *American Agriculturist*, though of necessity brief, was full of interest, and we left him, feeling that at least one man had learned the art of growing old, not only gracefully, but usefully.—G. T.

Animal Ailments.

DR. D. D. SLADE.

HEAVES IN HORSES.—S. S. Danbenspeck, Butler Co., Pa., has a horse that is serviceable, but he has the heaves. Although the term heaves is used with a good deal of latitude, yet in all cases it implies some disturbance of the respiration. Whatever may be the exact abnormal condition of the air cells, all cases are rendered less troublesome and more endurable by strict attention to the quantity and quality of the food. This should be given in small compass, and with great regularity. Provide roots and green food, and limit the supply of water. Feed dry oats and very little hay, only at night—the object being to prevent distention of the stomach, and consequent indirect pressure upon the lungs. Give slow and regular exercise, but never until an hour or two after eating. The air cells probably will never regain their original healthy condition.

"HOOF-BOUND."—Donald Chrisholm, Cape Breton, has a nine-year-old horse that is "hoof-bound," and has hoofs rather inclined to be flat. The walls of the hoof above, especially of the fore feet, are hollowing in from the heel to the toe.—This condition is dependent upon precocious inflammation of the sensitive tissues beneath the external wall or horny crust, leading to a separation of these tissues from the hoof, and a consequent sinking in of the front of the foot, and generally a bulging out or convex form of the sole. No treatment can restore the hoof to its natural shape and condition, but an animal may continue to be serviceable in slow work. This condition of the feet must be considered as an unsoundness of the animal.

LAMPAS.—A. Murray, Fairfield Co., Conn. This suggested condition of the hard palate and gums in young horses, may be materially relieved by scarifications with the lancet, as are the gums of young children in teething. The application of Lunar Caustic also has a good effect. Burning the parts should never be practiced. In feeding, the animal may continue at pasture, or if kept up, fed on green food and bran mashes, until the soreness has passed off. Then the usual grain and hay may be offered. There can be no objection to offering hay at any time. In fact, some authorities advise feeding of hard, unshelled corn as often exerting a salutary effect upon the abnormal condition of the mouth. Treat the animal as you would a child suffering from a similar cause. A mild dose of physic is often beneficial.

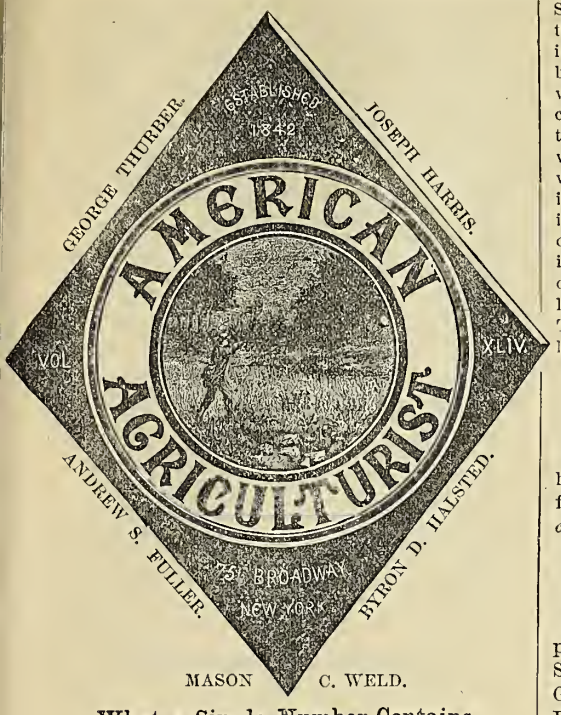
CONTAGIOUS DISEASE AMONG PIGS.—E. W. Daft, Clayton Co., Iowa, asks us for information about an obscure disease which has existed among his pigs for the past two years, and which attacks them at from ten days to four weeks old. The disease manifests itself by ulcerations about the mouth and nose, on the gums and tongue. Does not affect all the pigs sometimes a portion of the litter escapes. The disease first made its appearance in a house with a board floor. It does not attack the sows or hogs. It has generally proved fatal.—It is difficult to determine from the imperfect data given, what may be the precise nature of the disease in question, whether it should be classed as anthrax, or as swine plague. However this may be, it is a contagious blood disease, manifesting itself particularly among the young animals, and will continue to do so as long as the present premises are occupied. Separate the sick immediately, and destroy them; place the healthy pigs in new and comfortable quarters, at a considerable distance from those which have been occupied. Burn or bury deeply the dead. Entirely disinfect the old quarters, destroying all rubbish, hay, straw, wood-work, etc., that has come in contact with the disease. In short, stamp out the malady. Attempt no medical treatment.

CUTTING AND INTERFERING.—R. G. Houston, Sussex Co., Del., has a young mare that strikes just below the knee, and also interferes behind.—These conditions may depend upon weakness or fatigue, but when these become a habit, they are most probably the result of faulty construction of limbs. To remedy these defects, remove a portion of the inside of the shoe, which should be of equal thickness throughout, or straighten the shoe on the inner margin, and after its application, reduce the wall or crust to correspond to the shoe. In this way, striking the opposite limb with either hoof or shoe is avoided. Of course the nails should be placed in front of or behind the cutting portion.—There will be no difficulty in drying up the milk of a mare; there being no call for the secretion, it will soon disappear. Nature is the best guide in such matters.

IMPEDED RESPIRATION.—C. H. Mitcheltree, Mercer Co., Pa., has a mare, eight years old, that puffs and blows on exercise, but has no cough.—The animal may have some impediment in the nostrils, which may prevent free dilation, and the lungs be perfectly healthy, or there may be more or less disease of the lungs, causing what is known as "thick wind." In either case, the animal should not be used for one or more hours after feeding, and the food restricted to good sound oats and little hay. Green food in moderate quantities may be given, or the animal may be turned out to pasture. Very little water at a time should be allowed, except at night. Give regular and gentle exercise daily.

WOLF TEETH.—J. Boor, Fulton Co., Pa., asks whether wolf teeth injure a horse, and what is the cause of them.—The teeth which have received this name, are small supplementary molars or grinders, which appear in front of the true ones, having little or no resemblance to these last, and are most frequently shed with the first milk molar, and are not replaced. Occasionally they are not shed until the animal has passed the age of colthood. When retained they are perfectly harmless, and the idle stories which connect these teeth with various diseases, are but the result of gross ignorance and superstition.

BURSAL SACKS.—R. Drumm, Columbia Co., N. Y., has a mare fourteen years old, that has always had windgalls, but these have never troubled her until lately, when she became very lame from them.—The treatment in such cases is to subdue the inflammation in the parts by rest, and by lotions of cold or tepid water, restricted diet, and, if necessary, by a gentle purgative. When the heat and tenderness have gone, give support to the limbs by well applied flannel baudages, moderately tight at first, but increasing the pressure afterwards, for a portion of the day at least. If lameness continues, and there is any hardness like bone, cut off the hair, and as a counter irritant rub in mercurial ointment for several minutes, by means of a bit of cloth or flannel. This may be repeated from time to time. Active blistering, and even firing, both of which should be done by competent hands, may become necessary. Under all circumstances entire rest of the animal must be insisted upon, and the return to work should be very gradual.



What a Single Number Contains.

The wonderful variety, both in matter and illustrations, presented in a single issue of the *American Agriculturist*, under the changes and improvements inaugurated last June, are indicated to some extent by the following brief summary of the leading features of this November number:

The portrait of the Founder of the *American Agriculturist*, the venerable A. B. Allen, will pleasantly remind many readers of the early days of this Journal, while the account of a recent visit to him will inform them that he has lost none of his love for and devotion to agriculture . . .In "Walks and Talks," Joseph Harris, besides other matters, presents experiments by Messrs. Lawes & Gilbert, in the use of superphosphates upon potatoes, giving important results not before published in this country .. That farmers owning good mares should breed salable work-horses, is enforced by Col. M. C. Weld, and illustrated by Forbes, in life-like portraits of Percheron and Clydesdale grades. The same writer, in "Among the Farmers," has useful hints upon Silos, and also describes a superior Shorthorn cow... David W. Judd, in Editorial Notes, presents matters of interest to those living in the West, and to those who contemplate going there to establish a home... The peculiarities of German Farming are described and abundantly illustrated by Alfred Trumbull... Trapping Rabbits, which are the great pest of the Australian farmer, affords subjects for an article and several engravings....The Ailments of Domestic Animals are prescribed for by Professor D. D. Slade, of Harvard University....J. W. Powell treats of Forest Fires, which cause such an annual loss of timber Timely information on Poultry is given by D. Z. Evans, Jr....Shelters for Swine are described by J. M. Stahl, of Missouri....That farmers may be legally held liable by those they employ, is shown by H. A. Haigh, of Michigan....In some far western regions hay is the cheapest fuel; the method of preparing it is described and illustrated by R. G. Newton, of Dakota....Doctor B. D. Halsted writes on Old and New Breeds of Canaries. The Ox Bot-fly, The Prize Pugs, Shall we Destroy the English Sparrow, and other topics.. .The Relation of Plants to Health, and How to Water Plants, are discussed by James Sheehan....Elias A. Long describes and illustrates the best manner of laying out small Front Yards....Doctor George Thurber describes a Fish-killing Plant, a New Race of Pears, Fruit Without Flowers, tells what Sphagnum is, etc....Seasonable directions for the management of Bees, are given by W. Z. Hutchinson, of Michigan....Home-made farm conveniences, long a characteristic feature of this journal, are here represented by several Gateways and Gates, an Improvised Saddle, a Clod-crusher, a Wagon Jack, a Wheelbarrow with Springs, etc....Especially timely articles are, Care of Pigs in Winter, Watch the Flues, Underdraining in Winter, Hints About Work, etc., etc....The Household has the usual useful variety; Converting a Closet Door into a Wash-stand, is illustrated by Mrs. Busyhand, of Illinois....Mrs. Welsh gives directions for making several useful and ornamental articles....L. D. Snook, of Florida, describes and illustrates as easily made Meat Safe....Mary Winchester gives hints on Catering for the Sick, and Ethel Stone has notes on Autumn Styles in Dress....The Boys and Girls have two stories; one by Miss Sage, A Red Letter Day, and one by W. M. Cary, who illustrates the doings of some boys and frogs....The curious ways of the Marmoset are described and illustrated by J. R. Coryell.... The Doctor Talks about the ways of Flies, and an article on Boating and Canoeing will interest the older boys, while the beautiful picture, illustrating it, will please all....In numerous short items, including "Chats" and "Basket," the inquiries of many subscribers are answered, and a vast amount of information compressed into a small space....A number of new Books are noticed, and several important Swindling Schemes are shown up in the Humbug Columns.... There are three full-page, and nearly one hundred other illustrations by such leading artists as Forbes and Bennett.

Award of Prizes for Stories.

After a careful reading, and re-reading of one hundred and sixteen stories, sent in competition for the prizes offered in the June *American Agriculturist*, the judges render the following decision:

1st Prize, $50, to JULIA M. POTT, Summit, N. J.
2nd Prize, $30, to AGNES CARR SAGE, Brooklyn, N.Y.
3rd Prize, $15, to JOHN R. CORYELL, Brooklyn, N.Y.

Honorable mention is due to several other competitors, namely: M. E. Bamford, R. H. Adair, S. May Norton, B. Haymond, Daisy H. Clark, Gertrude Christian, Mrs. J. Breekinridge, Mrs. Walter Mills, Fred Grundy, Miss J. D. Thompson, S. E. Boggs, Anna L. Hopkins, Miss Isabel Smithson, and Amelia H. Botsford.—Twenty-eight States are represented in the list of competitors, and one of the stories comes all the way from New Zealand.

Chat with Readers.

A Weed for a Name.—"*W. R.*," Andes, N. Y. Had the full name been given, you would have had an earlier reply. The plant is Mugwort, *Artemisia vulgaris*, own brother to Wormwood, which, as you suggest, it resembles, but differs from it, among other points, in having its leaves dark-green above.

About Meal Worms.—An inquiry in a former number, asking how to keep meal worms, is answered by *M. Zehler*, Montgomery Co., Ohio, who says in reference to his experience in Europe: "We placed the worms in a box with bran, shipstuff, and woolen rags all in tatters. We always had as many worms as our nightingales and larks required."

A Weed in Oats.—*J. Phail*, York Co., Pa., sends a plant with a milky juice, the root of which is so deep he has failed to find it. The plant is Flowering Spurge (*Euphorbia corollata*). On account of its numerous, small, white flowers, it is sometimes cultivated as an ornamental plant. A succession of hoed crops will probably exterminate it, but it is very tenacious of life.

Osage Orange Seeds.—*G. Terrill*, Jefferson Co., West Va., has an abundance of the fruits of Osage Orange, and wishes to know how to separate the seeds. The balls should be placed in a heap, where cattle can not reach them, and allowed to thaw and freeze all winter. In spring they will be found soft and partly decayed, when the seeds may be separated by crushing the balls in a barrel or box, with a wooden pounder, and washing away the pulp, etc., from the heavier seeds.

"Is it Good for Hay?"—Chess or Cheat (*Bromus secalinus*), a common weed, especially in grain fields, is a tall, showy grass, and frequently sent us for a name. Those who do not know the grass, usually ask as to its value for hay. None of the species of Bromus rank high as nutritive grasses. The one in question was offered many years ago as "Willard's Bromus," but after a thorough trial before cattle, swale hay was eaten in preference. It is an annual, sometimes a biennial, and worthless in agriculture.

Fruit in Missouri.—*H. Schultz*, Kings Co., N. Y. Missouri is an important fruit-growing State, and its Horticultural Society is showing enterprise in publishing a Monthly Report, giving fruit statistics by counties. The yield of apples, in the entire State, is fifty-eight per cent. of a full crop. The varieties standing highest are: first, Ben. Davis; second, Willow Twig; third, Smith's Cider. The grape crop will be only about fifty per cent. of the average. The Society will make a large display of fruit at the New Orleans Exhibition.

"Egyptian Evergreen Millet."—*C. H. Smith*, Yellowstone Co., Mont., sends us a specimen of grass, the seeds of which he received from California with the above name. He would know as to its value, and if likely to become a weed. The grass in question has several names, but is most extensively known as Johnson Grass, *Sorghum Halepense*. In the Southern States it is highly esteemed, to feed green, and as hay. Some parties in Georgia and Alabama raise it on a large scale for baled hay. It is hardly likely to become a troublesome weed in the Northern States.

Abundant Bloom but no Cherries.—*Jas. P. Smith*, Howard Co., Ind., has several trees which are full of bloom each spring, but the fruit falls off by the time it is half grown. The loss of fruit may be due to the insect that is so destructive to the plum—the Curculio. Spread sheets on the ground beneath them, and give the trees a sudden jar. Commence this soon after the fruit sets, and if the insects are the cause of the trouble, some will be caught, and show that the jarring should be continued as long as any fall. If not the curculio, lack of nutrition is a probable cause, and a moderate manuring may be tried.

Remedy for Cockroaches.—*G. E. Teeple*, Summit Co., Ohio. Pyrethrum powder, whether the imported "Persian," or "Dalmatian," or that made in California as "Buhach," if persistently used, will free the house of cockroaches. Remove everything from the closets, and blow the powder, using a small bellows made for the purpose, into every crack in these, and in the room. The insects will come from their hiding places, fall to the floor and die, or be too much stupified to move, and may be swept up. Repeat the operation every few days, until no more, young or old, are observed.

Preserving Grape Juice.—*C. W. Dearborn*, Alameda Co., Cal. The so-called "Grape Milk" is a preparation of which the makers hold the secret. Grape-juice can be preserved by treating it the same as fruits are in canning them, *i. e.*, bring it to the boiling point, and bottle and cork it while still hot. While this would preserve the juice so long as air is excluded, it is probable that fermentation would soon commence when it was opened, and in contact with the air. We have had no experience with salycilic acid as a preserving agent. We should prefer not to use it until more is known about its effects on the system.

A Plant for a Name.—*J. M. Davis*, Essex Co., Mass. —The orange-colored slender stems which hang like tangled threads upon various wild plants in low places, belong to a kind of Dodder, or *Cuscuta*. There are a number of species, and as it has not yet flowered, we can not say to which the one sent belongs. These plants start from the seed, and the slender stem soon attaches itself to some other plant by means of small sucker-like disks, through which it robs the supporting plant of its nutriment. After it is fairly established, the lower part of the stem connecting it with the soil dies away, and the dodder henceforth subsists as a parasite.

Strawberries in Autumn, and Pegging down Runners.—*F. K. Ripley*, Middlesex Co., Mass., sends us some strawberries that ripened in September. In a warm season, it is not unusual for some of the flower buds, which are prepared for next spring, to be forced into flower, and even ripen the fruit in the fall. He writes: "I should like to tell those readers who have a small bed of strawberries, how easy it is to direct the runners, and have them take root in the desired place. Take a common wooden toothpick (five cents buys a large box), bend it in the middle, and with one point on each side of the runner, thrust it into the ground. This obviates the use of stones, chips, etc., to hold the runners in place."

Cloth in Place of Glass.—*C. S. Tiffany*, Putnam Co., Fla., asks us how cloth is prepared to use on a cold-frame in place of glass. The preparation used by the late L. C. Root, of Illinois, who employed cloth (sheeting), to cover frames extensively, was as follows: To one quart of linseed oil add one ounce of pulverized sugar of lead, and four ounces of pulverized rosin. Heat in an iron kettle until thoroughly dissolved and mixed. Apply while hot to the muslin stretched upon a frame. Mr. Root said: "Endeavor to apply when two successive clear days can be had, to dry it well before placing it over the vapor and heat of a bed." Rings were sewed to the edges of the muslin, fifteen inches apart, to hook over small nails driven into the frame.

Rabbits and Young Trees.—*W. H. Carpenter*, Livingston Co., Mo., writes us that he is obliged to wrap the trunks of all young fruit trees with some material to prevent the attacks of rabbits, and asks how it would answer to use paper saturated with coal-tar. We would not advise the use of coal-tar in contact with the bark of young trees, as it is sometimes injurious. The old method was to shoot one of the rabbits, cut it open, and rub the trees with its flesh. This led to the use of blood, which in some localities is a common application, and an effective one. Blood is procured from a slaughter-house, and sprinkled on the trees with a swab, made by tying corn-husks to a stick. Rabbits have a great dislike to the odor of blood and flesh, and any method that will apply these to the trees easily and cheaply, may be adopted.

Agricultural Colleges.—*G. E. Teeple*, Summit Co., Ohio, asks us: "What is your opinion of sending boys to Agricultural Colleges in order to become practical farmers?"—In our opinion the result will depend somewhat upon the college, and more upon the boy. In some States, the college fund has been given to institutions which do not teach the operations of agriculture, and do not provide for, or require manual labor. Some of these are most excellent institutions, but whatever else a boy may learn at them, he must go elsewhere to be taught to be a "practical farmer." Frequently a farmer's boy goes to an Agricultural College for the express purpose of learning those things which will enable him to gain his livelihood in some other occupation than that of his father. This is not the fault of the college but of the student. There are a number of Agricultural Colleges which teach not only the principles of agriculture, but its mechanical operations, and at which a boy can become a "practical farmer" if he really so desires.

Western Editorial Notes.

Rapid Growth of Dakota Towns.

In the Nov. number of the *American Agriculturist*, of last year, we described the rapid growth of Dakota towns, through which we had passed while going through the centre of the Territory, over the Chicago & Northwestern Railroad to the Missouri River at Pierre. We, at the same time, described the land fever then prevailing, which was equal to the gold craze in California, or the oil fever in Pennsylvania. We then journeyed westward from Tracy through Huron and Wolsey. This year we proceeded further north to Minneapolis, then from Minneapolis journeyed nearly due west to Aberdeen, and then southward through Dakota over the Milwaukee and St. Paul Railroad. While the furore for purchasing or locating lands, has materially subsided, we have found towns on this route southward, whose growth has been as marvellous as those we last year visited while going westward through the territory.

Aberdeen, located nearly three years ago last June, now has a population of three thousand; one Presbyterian church, one Methodist, and one Catholic, are built, while a Baptist church is being erected. Many of the people are from the Eastern States, and came here to build up what they believed would be a very large place in the centre of a great agricultural region.

Warner, ten miles south of Aberdeen, has twenty houses, and two large elevators. Stretching out in every direction, as far as the eye can reach, the prairie is dotted with white houses. There is considerable farm machinery lying around the depot at Warner, which should be housed by the owners. A good deal of the prairie is also broken in the neighborhood of the depot. Proceeding south from Warner, we strike an unbroken prairie though little or no government land remains untaken in this vicinity.

Melette.—Reaching Melette, twelve miles south of Warner, we find a village of about thirty houses. There is a large frame elevator near the depot. The country is level hereabouts, and several buildings are going up. Here, as at Warner, there is a good deal of farm machinery lying carelessly about the depot. Far away in the distance, at the right, the dim outline of two or three villages is seen, while the James River appears at the left. Here, as at Warner and Aberdeen, the settlers state that they have had good crops.

Ashton.—Proceeding eleven miles further south to Ashton, we find a village three years old, of about five hundred population, and forty houses. The people hereabouts are mainly from Iowa and Wisconsin. There is a Methodist church built, and another church being erected. One elevator is built, and another is being constructed. There is likewise an artesian well near the depot. The James River flows not far from the village.

Redfield.—Nine miles further south we reach Redfield, situated on a broad plateau of land; there is a large depot here, and a flourishing village of over one thousand population. New buildings are going up rapidly, and the town is booming. In the October *American Agriculturist* there is an error, so far as this town is concerned; instead of saying railroads one hundred miles off, somebody omitted the word lands; that is, railroad lands one hundred miles off. The Chicago and North Western Railroad crosses the Milwaukee and St. Paul Railroad here, so that there are two railroads in the village. Hard wheat is selling here at sixty cents; soft wheat fifty cents a bushel.

Wolsey.—Passing through the hamlets of Tulare and Bonilla, we reach Wolsey, twelve miles south of Aberdeen. This thriving village, which was founded only a year ago this autumn, now has a population of four hundred. The people are mostly from Michigan, Wiscousin, New York, Indiana, Vermont, and some from Missouri. There is one Methodist church built; Catholic and Presbyterian church buildings are being erected. A branch of the Chicago and North Western Railroad crosses the Milwaukee and St. Paul here. There are two grain elevators and two coal sheds near the depot. The prairie is rolling and unbroken for miles in every direction around Wolsey. Hail storms last July cut down the crops in this vicinity. There is a fine school-house on the hill at the left of the railroad near Wolsey. South of Wolsey, wheat and corn were badly cut down last July. We have seen many prairie chickens flying on both sides of the railroad from Aberdeen down to Wolsey.

Alpena.—Continuing our journey southward from Wolsey, we pass through Virgel and reach Alpena. Alpena has two dozen houses, a big school building, a business street, and two handsome buildings being erected by the railroad. The land is rolling, with hills in the distance.

Woonsocket.—Coming still further south ten miles, we reach Woonsocket, which is twenty-seven miles south of Wolsey. Here another branch of the Milwaukee and St. Paul Railroad coming due east from La Crosse intercepts the division of the same railroad, passing from Aberdeen southward to Mitchell. Woonsocket was only laid out October, 1883, but now there is a population of six hundred people, three banks, two newspapers, and three handsome looking blocks. There are two churches—one Methodist built, and one Presbyterian under way. The brick building in Main street presents a fine appearance. The place, altogether, looks very thrifty and enterprising.

Mitchell.—Twenty-seven miles further south, we reach the flourishing village of Mitchell, where the road coming from the north intercepts the branch of the Milwaukee and St. Paul, running nearly due west through Prairie du Chien, to the Missouri River at Chamberlain. Mitchell is settled with people from Iowa, Wisconsin, Michigan and Illinois. It has six churches, three banks, two hotels, and about four thousand population. There is one daily paper here, and three weeklies. On a hill overlooking the village, the Methodists are now erecting a large university. The City of Mitchell gave the land, and the railroad ran the tracks from the main line up to the plateau on which the university is erected, for transporting building supplies. It also gave the quarry stone for the erection of the buildings, which are to be very fine. Mitchell is named after the president of the Milwaukee and St. Paul Railroad. Turning now due east, towards Iowa, we pass through a rolling unbroken prairie, crossing the James River, which is invariably called the Jim River by the settlers.

Parker, fifty-one miles east of Mitchell, has an oldish appearance. Woods and fences now beginning to appear as we move eastward towards the Iowa boundary. A few miles further, and we have passed from Dakota Territory into Western Iowa. D. W. J.

Free Information about the Great West.

The following have signified their willingness to give any desired information about lands in their respective localities. Their letters were received too late to have the particulars incorporated in the complete tables, published on pages 476 and 477 of the Supplement to the October number:

J. H. Bennett, Pueblo, Pueblo County, Colorado.
J. A. Tresslar, Bluff Creek, Johnson County, Indiana.
P. C. Jacobs, Bluff Creek, Johnson County, Indiana.
John Miller, Bluff Creek, Johnson County, Indiana.
O. H. Tresslar, Bluff Creek, Johnson County, Indiana.
W. H. Paddock, Smith's Valley, Johnson County, Ind.
A. D. States, Cherokee, Crawford County, Kansas.
J. M. Clatchy & Co., Sacramento, Sacramento Co., Cal.
N. R. Burnett, Atalissa, Muscatine County, Iowa.
J. Y. Spangler, New Bedford, Bureau County, Illinois.
John F. Wallace, Bismarck, Burleigh County, Dakota.
Edward Sloan, Bismarck, Burleigh County, Dakota.
S. J. Scriber, Rochford, Pennington County, Dakota.
L. Schardon, Walla Walla, Washington Territory.
R. Olney, Marathon, N. E., Buena Vista, and S. E., Clay County, Iowa.
F. G. Bond, Glyndon, Clay County, Minnesota.
J. E. Russell, Cleardale, Sumner County, Kansas.
F. C. Feltz, Ogallala, Nebraska.
Isaac H. Banthes, Farmington, Washington Territory.
Chas. Hitchcock, Hitchcock, Beadle County, Dakota.
S. S. Moffett, Kingsburg, Fresno County, California.
W. P. Lamphere, Washington, Washington Co., Kans.
C. A. Cause, Graymont, Livingston County, Illinois.
Peter Denny, Brewersville, Jennings County, Indiana.
C. W. Marston, Cedar Junction, Kansas.
A. P. Crane, San Lorenzo, Alabama County, California.
C. N. Hull, Parkerville, Kansas.
Richard Hill, Dayton, Colorado County, Wash. Ter.
Ophrian Cooper, Ogallala, Keith County, Nebraska.
Levi Clapp, Woodstock, Vermont.
H. S. Cutter, Larkin, Kansas.
J. E. Yerks, Dwight, Richland County, Dakota.
D. H. Webster, M. D., Austin, Cass County, Mo.
I. Miley, Marvin, Kansas.
I. J. Woolston, Butte, Dakota.
J. B. Slater, Medical Lake, Washington Territory.
E. H. Ernst, Olathe, Kansas.
J. H. Lee, Leisburgh, Stafford County, Kansas.
R. W. Lee, Leisburgh, Stafford County, Kansas.
Samuel Mather, Leisburgh, Kansas.
W. N. McGuire, McCune, Crawford County, Kansas.
C. N. Udell, Canon City, Colorado.
F. E. Egge, Decorah, Iowa.
Nation & Parris, Bridgewater, Dakota.
A. D. Urquhart, Kenneth, Sheridan County, Kansas.
L. C. Chase, Netawaka, Jackson County, Kansas.
M. M. Halleck, Central City, Nebraska.
F. J. Fowler, Arispie, Pottawatomie County, Kansas.
Chas. T. Zunich, Grand Harbor, Dakota.
H. H. Leavitt, Walnut Road, Redwood County, Minn.
Victor E. Calderwood, Crary, Ramsey County, Dakota.
J. R. Huffman, Huffman, Indiana.
J. S. Turner, Cerro Gordo, Jewell County, Kansas.
J. E. Horton, La Grace, Campbell County, Dakota.
Chas. F. Foltz, Fremont, Graham County, Kansas.
T. K. Long, Mandan, Dakota.
James W. Gurney, Dover, McCook County, Dakota.
John H. Lawrence, Greenleaf, Meeker County, Minn.
Bell J. Fowler, Lincoln, Placer County, California.
Konrad Luther, Tooktay, Charles Mix County, Dakota.
Jas. B. Simpson, Dallas, Texas.
Wm. J. Urquhart, New Rockford, Foster County, Dak.
Mrs. S. A. Snyder, Angus, Polk County, Minnesota.
R. H. Hewitt, Los Angeles, California.
John F. Barr, Juniata, Nebraska.
James McNamara, Diana, Sanborn County, Dakota.
W. E. Boise, Bellevyria, Steele County, Dakota.
Allen C. Whiteman, Murdock, Butler County, Kansas.
Jos. B. Gossage, Rapid City, Dakota.
F. T. Fairbanks, Hopeville, Ga.
H. A. Stiles, Pavilion, Wabaunsee County, Kansas.
J. F. Zeoiker, Franklin, Franklin County, Nebraska.
Martin Allen, Hays City, Ellis County, Kansas.
W. J. Egan, Selish, Missoula County, Mont. Ter.
Van R. Brown, Arvilla, Ranforks County, Dakota.
Ed. Sutherland, Minburn, Dallas County, Iowa.
John C. King, Banning, San Bernardino County, Cal.
Augustus McPherson, P. M., Bath, Brown County, D. T.
M. B. Moyer, Clay Centre, Kansas.
J. W. Gregory, Sherlock, Finney County, Kansas.
C. M. Weston & Son, St. James, Minnesota.
Wm. Dyke, Effingham, Effingham County, Illinois.
Sally M. Baker, Cresbard, Folka County, D. T.
I. C. Martin, Blue Hill, Webster County, Nebraska.
J. H. Avery, Girard, Crawford County, Kansas.
Harry Swift, Chapman, Kansas.
Alex. N. Sayre, Vashon Island, King County, Wash. T.
John Hadden, Hancock, Stevens County, Minn.
Rohinson, Watson & Company, Osborne City, Kansas.
A. D. Evans & Company, Axtell, Nebraska.
W. L. Griggs, Kirksville, Mo.
John B. Missamore, St. Clere, Pottawatomie Co., Kan.
B. L. Grover, Burrton, Harvey County, Kansas.
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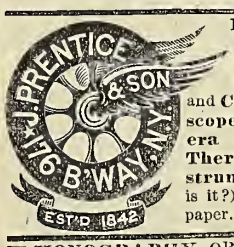
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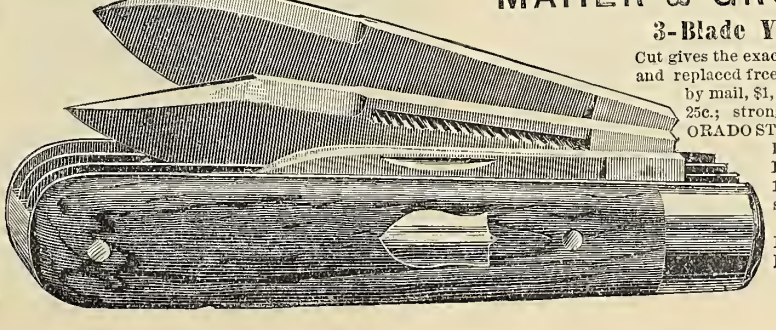
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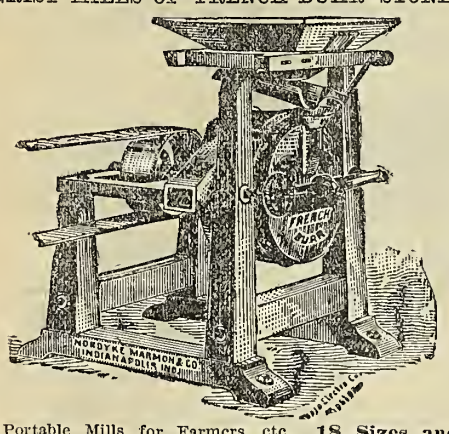
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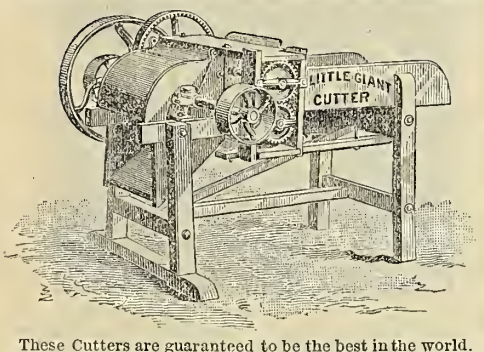
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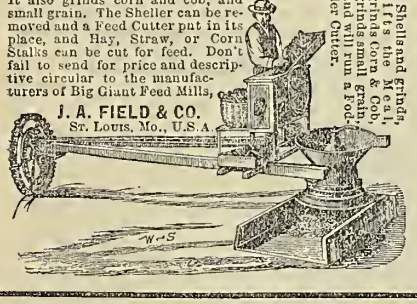
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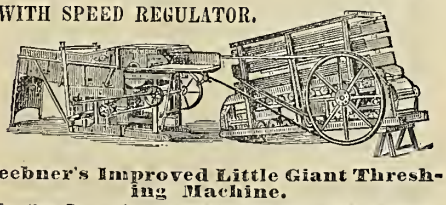
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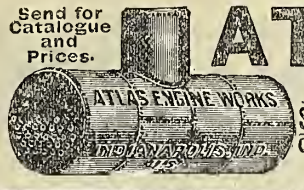


Heebner's Improved Little Giant Threshing Machine.

No other Power is as powerful and easy for the horses. The Level Lags and Speed Regulator are the most valuable improvements ever made in horse powers. See that you get Heebner's, any other with level lags will be an infringement upon our patents.

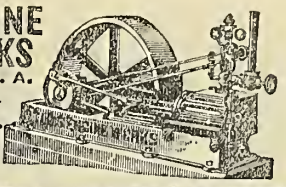
The Little Giant has more good points than any other Thresher. None can do work as fast, nor any better, and none are better made. Union Feed Cutter, Drag and Circular Saws, etc. Send for Illustrated Catalogue.
HEEBNER & SONS, Lansdale, Pa.

Send for Catalogue and Prices.



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Pulverizes everything—hard, soft, sticky, and gummy. Grain, Drugs, Chemicals, Clay, Guano, Cotton Seed, Bark, &c., &c. A wonderful machine for grinding Corn, Oats, Feed, &c., &c. Steam Engines and Boilers of all sizes, for Farmers' and Manufacturers' use—at lowest prices. Send for Circular. Address,
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To Cut HAY & STRAW from the Mow, Stack, or Bundle.

To Cut CORN STALKS or BALED HAY, or Unthreshed OATS in bundles, into Fine Feed.

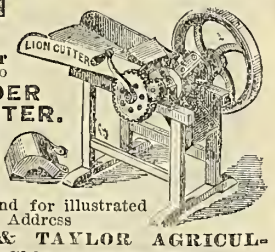
To Cut ENSILAGE from Silo. To cut PEAT, and Ditching in Bogs and Meadows, severing grass roots, and cutting off bush roots an inch through, readily. Farmers having any of this work to do, should not be without a Lightning Hay Knife, and would not, after an hour's trial. If you feed only a horse or cow, it will **PAY YOU** to have a Lightning Hay Knife, *to cut fresh hay from the side of the mow or stack,* instead of pitching from the top, where it is drying up and losing its best qualities. **IT PAYS** to use a Lightning Hay Knife to cut a load of Clingy Clover Hay into sections, so as to pitch off easily. This is **THE KNIFE** which **Cuts Frozen Hay** readily. Manufact'd only by

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LION CUTTER

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The most rapid evaporation, with least fuel.

Made in ALL SIZES, for farm or factory use.

We also manufacture the best Evaporators for making

APPLE JELLY

from Cider, without sugar or any foreign substance.

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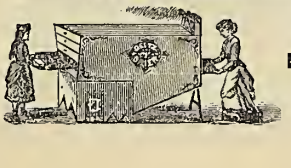
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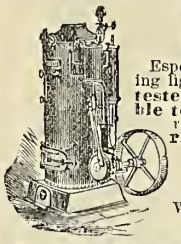
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Especially adapted for purposes requiring light power. Wrought iron hollers—**tested, inspected and insured payable to the purchaser.** Guaranteed as represented. Ready to run as soon as received.

3	Horse Power,		$250.00.
5	"	"	300.00.
7	"	"	375.00.
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Simple, cheap. For cooking food for Horses, Cattle, Hogs, Sweating Tobacco, Laundry Use, etc. It has no Equal. Address, GORTON STEAMER M'F'G CO., Montrose, Pa.



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With *Cast-Steel Grinding parts, Steel Cob Crusher,* and Sieve for Meal. They take **LESS POWER, do More Work,** and are *more durable* than any other mill. *Send for Descriptive Catalogue.* Also manf'rs of the **Union Horse Power, with Level Tread.** *Threshers and Cleaners, Feed Cutters, Circular Saws, etc.*

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Farm and Plantation Mill.

The following sizes of Mills kept in stock, or furnished on short notice: 12 in., 14 in., 16 in., 18 in., 20 in., 22 in., 24 in., 26 in., 30 in., 42 in., 48 in.

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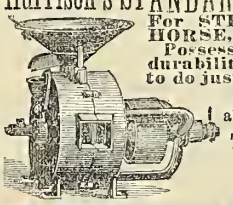
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Only mills made with **CAST CAST STEEL GRINDERS**

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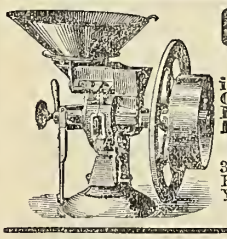


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FARM
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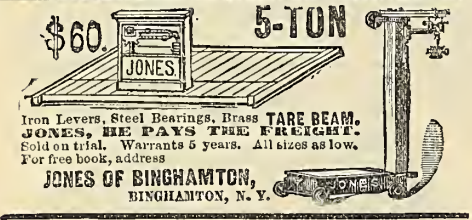


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Send for Circular.

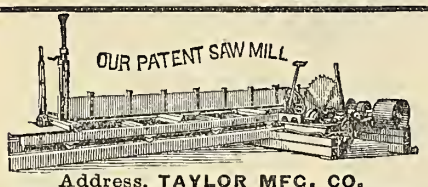


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Corn and Cob Mills, 18 sizes, adapted for all kinds of power. Warranted to do as good work as Buhr stone, and to give satisfaction. We guarantee them to do all we claim for them. Will give a trial *of ten days*, and if not as represented, can be *returned at our expense*. AMERICAN GRINDING MILL CO., 81 & 83 N. Clinton St., Chicago, Ill. Send for Catalogue and Price List.

$60. 5-TON



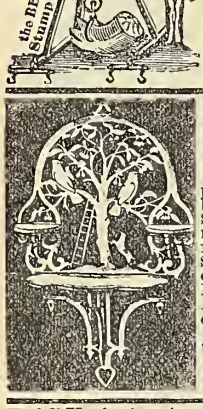
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Received Centennial Medal.
Is now in use in Canada and nearly every part of the U. S.
LIFTS 20 to 50 TONS.
Stands on runners, worked by two men. 5 Sizes. Prices $35 to $70. Circulars free. Manufactured by H. L. BENNETT, Westerville, Franklin Co. Ohio.

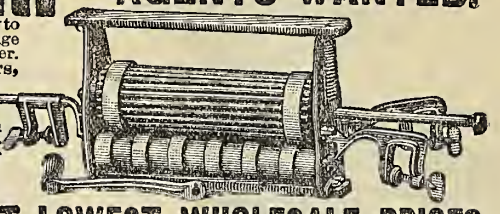


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SAWYER.
This beautiful three-shelf Bracket pattern, size 13x21, and a large number of Miniature Designs for Scroll Sawing, will be sent, post-paid, on receipt of 15 cents. Or send 6 cents for *Illustrated Catalogue* of Scroll Saws, Lathes, Fancy Woods, Mechanic's Tools, Small Locks, Fancy Hinges, Clock Movements, etc. A complete stock, and *great inducements offered*.
State where you saw this advertisement. Address,
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216-220 Asylum St., Hartford, Conn.

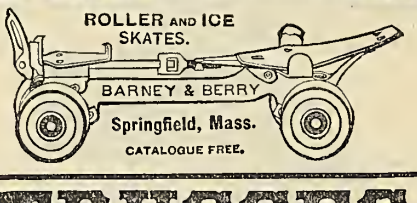
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Books 3 Cents Each.
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Address F. M. LUPTON, No. 3 Park Place, New York.

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WASHER.
OVER 300,000 IN ACTUAL USE
And all giving perfect satisfaction.
AGENTS WANTED.



Will wash Cleaner, Easier, and with Less Injury to Clothes than any other in the World. We challenge any manufacturer to produce a better Washer. **Every Machine Warranted FIVE Years,** and Satisfaction Guaranteed. The only Washer that can be clamped to any sized tub like a Wringer. Made of malleable iron, galvanized, and will outlast any two wooden machines. **Agents wanted.** Exclusive Territory. Our agents all over the country are making from $75 to $200 per month. Retail price, $7. Sample to agents, $3. Also our celebrated
KEYSTONE WRINGERS AT LOWEST WHOLESALE PRICES.
Circulars Free. Refer to editor of this paper. Address F. F. ADAMS & CO., Erie, Pa.



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The World's Recognition of Merit.
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At the late INTERNATIONAL MEDICAL AND SANITARY EXHIBITION, the World's most competent Judges recognized their *unequalled excellence* by granting the
ONLY "AWARD OF MERIT" FOR TRUSSES
"TO I. B. SEELEY, PHILADELPHIA, U. S. A."
(Over Sixty-Eight Competitors,)—confirming their high favor with America's most distinguished Surgeons.
EXHIBITION JUDGES FROM THE ROYAL COLLEGE OF SURGEONS:—*Thomas Bryant, F. R. C. S., Christopher Heath, F. R. C. S., Thomas Smith, F. R. C. S., John Wood, F. R. S., F. R. C. S.*
SEELEY'S HARD-RUBBER TRUSSES.


Fig. 1.


Fig 5.

Fine Steel Springs, neatly covered with highly-polished Hard Rubber. Made in every desirable pattern, with Pads anatomically constructed. Light, cool, cleanly, durable; unequalled in quality, finish, and practical construction. Unaffected by time, use or climate; used in bathing. **Always Reliable. Prices reduced** to meet the popular demands. Sold by all leading Druggists and Dealers at the usual price of common Trusses.
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write for information, inclosing 25c. for 78-page catalogue, descriptive of Trusses, Rupture, and its Treatment as endorsed, adopted and illustrated in the late works on Surgery, by America's most distinguished writers.
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Under Patronage of the World's most Eminent Surgeons.
The Correct and Skillful Mechanical Treatment of
HERNIA OR RUPTURE A SPECIALTY
See GROSS'S Revised Edition and AGNEW'S Late Surgery.
REFERENCE:—*Profs. S. D. Gross, D. Hayes Agnew, Willard Parker, W. H. Pancoast, Dr. Thomas G. Morton, and others.*
CAUTION.—Avoid the various imitations made to look like "SEELEY'S," and to sell on the enviable reputation acquired by our goods during the past 25 years, by purchasing only Hard Rubber Trusses stamped, spring and strap, "I. B. SEELEY, WARRANTED."

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With Rubber hands and feet. The most comfortable, durable, and useful. In practical use in all civilized nations. U. S. Government Manufacturer. Established 1858. Large illustrated pamphlet, in English or Spanish, sent free. Also, a NEW SYSTEM of MEASUREMENT, by which limbs can be made and sent to all parts of the world with GUARANTEED SUCCESS.
A. A. MARKS,
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ARTHUR'S ILLUSTRATED Home Magazine

For choice reading, beauty of illustration and typography, and pure and high character, "ARTHUR'S ILLUSTRATED HOME MAGAZINE" has no rival. Established over thirty years ago by T. S. ARTHUR, who still remains its editor, it has always been a welcome visitor in thousands of American homes. Younger and fresher talent unite with the editor's maturer judgment in keeping the Magazine always up to the advancing tastes and social culture of the times.
A SAFE MAGAZINE. The pages of the **Home Magazine** are kept absolutely free from everything that can deprave the taste and lower the moral sentiment. It is, therefore, a pure and safe magazine. It aims to promote happiness in the family through the cultivation of a spirit of kindness, service, and self-forgetfulness.
Terms, $2.00 a YEAR; three copies, $5.00; eight copies and one extra, $12.00. **Specimen numbers free.**
T. S. ARTHUR & SON,
920 Walnut St., Philadelphia.

Dr. STRONG'S
HEALTH CORSET



Was constructed expressly to obviate the debilitating effects of ordinary Corsets, by relieving the delicate and vital female organs of injurious pressure, thereby affording such perfect ease and freedom of action in stooping and reclining positions as to leave the Wearer almost unconscious of the presence of a Corset. By its use the weight of the clothes is transferred to the shoulders and chest-walls, that were designed by nature to bear it, giving necessary relief and healthful support. It has beautifully formed busts that give the outlines of perfect development and graceful figure.
Ask your merchant for it.
Sample sent prepaid on receipt of $1.50 and size.
J. G. FITZPATRICK & CO., M'F'RS, NEW YORK.

AGENTS WANTED
Illustrated Historical Family Record and Album will sell in nearly every home. Write for circulars and terms and make $75 to $100 per month.
Historical Publishing Co., Dayton, Ohio.

OPERA GLASSES *Microscopes, Telescopes, Spectacles, Barometers, Thermometers, Photographic Outfits for Amateurs.* W. H. WALMSLEY & CO., successors to R. & J. Beck, Philadelphia. Illus. Price List free to any address.



Soap and Music.

A concern in Massachusetts wants agents to peddle its Recipe for Making Soap. As an inducement, after the agent has sent the concern orders to the amount of fifty or seventy-five dollars, said agent can have a "Cabinet Parlor Organ." If that organ blows as loudly as do these soap circulars, what a noise it will make!

A Very Ancient Contrivance.

The very worst forms of medical quackery are those that relate to troubles which can not, with propriety, be discussed in a family paper. Some of the circulars of these quacks are most pernicious in the manner in which they act upon the fears of those who may read them. Others contain the most absurd claims, and are fit subjects for ridicule. One of these, now before us, sets forth the merits of its peculiar crinkum, and claims that "discoveries made on mummies in old tombs," show that this "very appliance (only not so crude), was in use by the ancient Egyptians!" Moreover the talk in the circular about the electrical action of the affair in question is most laughable in its absurdity.

"The Great American Propaganda Society."

One, from the name given above, would never guess the objects of the "Society." The "Propaganda" is the name of a Papal Society at Rome, for propagating the Romish faith. To use it for a secret society of Inventors, or a sort of Extended Patent Agency, seems ridiculous. A subscriber in sending us its pamphlet, circular, form of oath, and all the rest, asks us: "What do you think of it? Is it square?"—It looks upon the face of it as a scheme for making money out of the patent business. We think no good can come of joining a concern bonnd together by such oaths as are here printed. At the bottom of the form of oath are several questions, to be answered in writing by the applicant for membership. Among these we find the following: "*Question.* Do you think any person should live, who will voluntarily take the above obligations, and then violate them?"—If this is not an intimation, that any one who violated the oath should not live, then what does it mean? We do not think that the country is quite ready for this "Secret Order of the Great American Propaganda Societies, with its headquarters at Cincinnati."

The New York Book Company.

The advertisements in papers published at a distance from the city implied, that the "New York Book Company," No. 83 Nassau street, would supply books of a kind the sale of which is forbidden by law. The "Company" had long been under suspicion, but the officers in their visits to the place in Nassau street could find no evidence of traffic in improper literature. It was at length discovered, that the "Company" had an "annex" on South Washington Square, where a stock of contraband books was kept, and where the books of this character were mailed The law forbids the use of the mails for sending such books, and Anthony Comstock, as special agent of the Post Office Department, arrested Wm. Moore and Isaac Wallenstein, who made up the "Company," and took them before a U. S. Commissioner.

A CHANGE OF ADDRESS.

Those who may have occasion to write to the young men doing business under the high sounding title of "New York Book Company," will be more likely to reach them if they address their letters to Ludlow street Jail, instead of 83 Nassau street. The Grand Jury recently indicted them for violating the law against sending indecent books, etc., by mail, and they are in that celebrated retreat, Ludlow street jail, awaiting trial.

He Wants Particulars.

D. A. Mount, Middlesex Co., N. J., writes us, that a friend received a free Recipe for the Cure of Catarrh and Bronchitis, from a so-called Dr. Lawrence in Brooklyn. N. Y. After trying to get the prescription prepared at the drug stores, and failing, his friend proposed to send the money to Lawrence himself for the stuff. Mr. Mount advised his friend to keep her money until she could learn something about said Lawrence, and he asks us "to give the particulars" in the *American Agriculturist*. We only know this Lawrence by his publications, and these proclaim him to be a quack. It is the old dodge of offering a free recipe, and sending a pretended prescription that calls for articles that have no existence. There is always a saving clause in the circulars of these chaps. They foresee that there may be a difficulty in finding the articles called for by the recipe, and offer to furnish the compound at a round price. This Lawrence sends two recipes, one of which contains "Acetate Silica," an article that has no existence. The other recipe calls for the "Compound Tincture of Arabian Red Lava Flower," a thing which Lawrence was sure that no apothecary would be able to supply. When one sends recipes, which he knows can not be prepared, is he anything but a fraud, and a very mean one? Mr. Mount should advise his friend to save her money. One who is false in one thing is likely to be false in all.

Corresponding With Strangers.

No young girl should engage in a correspondence which she is unwilling that her mother should know about. No good can come from corresponding with a stranger, and much evil may follow. It is not rare to see advertisements for a wife or for a husband. These, usually by persons well advanced in life, are sufficiently disgusting, but when young girls of sixteen or eighteen, advertise for correspondents of the opposite sex, with a view to matrimony, it is revolting to all right feeling persons. A paper published in Chicago, devoted to matrimonial matters, has two pages filled with advertisements of those of both sexes, who wish correspondents, a most melancholy display. Many of the advertisements are most thoughtless, and show that the girls have no idea of the importance of the subject they approach with so much frivolity. One girl writes: "A Blooming Miss, of 'sweet sixteen,' with long black hair and blue eyes, wishes to correspond with an unlimited number of gents. Object, mutual improvement, and may be——. Will reply to all who enclose stamp or photo." There is plainly room for "improvement," for any girl who speaks of gentlemen as "gents," but why "an unlimited number?" Another reads: "Two young school girls, cultured and refined, both brunettes, would like a few gentlemen correspondents. Emma is sixteen, and Geneva nineteen." The appearance of that advertisement shows that people may have very different ideas about "refinement." The whole thing is wrong, it has not a single redeeming feature, and it is melancholy to think that there are so many young girls, as this paper shows, who are lacking in that modesty and that nice sense of propriety, which should be the crowning graces of girlhood.

Clairvoyants, Sybils, and the Like.

The papers in all large cities, that will publish them, contain advertisements of persons who claim to possess clairvoyant powers, or to be remarkably gifted beyond ordinary mortals. They advertise to hold "consultations," or "seances," upon business, matrimony, sickness, to aid in the recovery of lost or stolen articles, etc. One who reads these advertisements, may wonder that there should be people so foolish as to consult the advertisers, without suspecting that their innocent looking cards cover far more than appears on the surface, and may lead to the most diabolical transactions.

THE COUNTESS DEL VASTO.

Notwithstanding she claimed to be a Countess, the officers of "The Society for the Suppression of Vice," recently arrested a female, who has operated under a variety of names and titles. She has at times been a teacher of languages, a professional beautifier, a matrimonial agent, etc. Latterly as the Countess del Vasto, she claimed to be a "Roman Sybil." Her circular setting forth the various branches of her business, is a remarkable production. She claims to possess supernatural powers, and to be able to serve her patrons "at any time, in any way, and in any kind of trouble." This would seem to be comprehensive enough, but she specifies matrimony, stock speculations, the healing art, and the art of beautifying, as among the things to which she gives special attention. A part of her business was dealing in "rare photographs," which proved to be pictures hardly suited for parlor decoration. One of her methods of forming acquaintances was to answer the advertisements of those in search of furnished lodgings. After all, her real business was that of a procuress, and the charge upon which she was arrested is that of leading little girls to their ruin. The details of this horrible case would be out of place here, but the evidence appears to show her to be a vile monster in female form, and should convict her of a crime, for which, unfortunately, the law does not provide an adequate punishment.

OVER FIVE HUNDRED LETTERS.

When the creature was arrested, over five hundred letters were seized, which fully reveal the nature and extent of her crime. Some of these letters, it is said, are signed by men well known in business and other circles, who have heretofore been regarded as respectable. The creature, since her arrest, has threatened to expose certain wealthy persons, who have had "business relations" with her, unless they come to her relief. The whole crew of clairvoyants are frauds, and some of them use the business as a cloak to cover the vilest occupations.

The Interior Associated Press.

The circular or prospectus of the "Interior Associated Press" is rich reading. It intends to have a circulation of one million for the "Farmer's Ledger." To this end it proposes to have a "local edition" of the paper in every county, until the million is reached, when outsiders must stay out. The plan is for a person in each county to proclaim himself Publisher and Editor, get all the subscriptions and advertising he can, and forward his orders with money to headquarters. His papers will be forwarded to him all printed and properly edited with local news to suit his particular meridian.

PUBLISHING MADE EASY.

This "Association" shows how any one, no matter what his previous experience may have been, can at once bloom out as editor and publisher. This he can do with no cost to himself, and make much money besides. What a pity the rest of us had not had this chance years ago. "Young man," said the old man to a beginner, "the most compendious way to make money, is to buy goods very low on a long credit, and to sell them very high for cash." That is a poor way of money making compared with the plan of this "Interior" concern, which requires no capital at all, while the profits are large—besides the "passes." A strong inducement to enter the business of publishing is the passes on railroads, to circuses, and other shows, which the local publisher and editor is to enjoy, and full directions as to "How and where to apply for passes" are given, as apparently the most important of an editor's labors. Each local edition of the "Farmer's Ledger" stands a chance of being unlike all other editions, as the paper will be furnished to each publisher "Democratic, Republican, Greenback, Prohibition, Agricultural, Literary, in short any style of paper." Being a "Farmer's Ledger," one would suppose that the paper might be slightly "agricultural," without detriment. But the "Ledger" can be "all things to all men;" so long as the money is paid, the "Interior Associated Press" says, "you takes your choice." This grand scheme has its headquarters at—where else should it be—Cincinnati. But "as soon as the necessary machines can be completed, we will open offices in New York, Boston, New Orleans, and St. Louis." Pray hurry up that machinery, and not confine all the fun to Cincinnati.

HOW IS IT WITH OLD SCHEMES?

This "Interior" scheme reminds us of "The American News Exchange," and the "Mutual Press Association," also of Cincinnati, which two or three years ago were such "promising" concerns, but of which, of late, we hear nothing. Is the "Interior Associated Press" an outgrowth of these, or is it a rival shop?

A. 15 A.

We have never before *extended* this liberal proposition. There are, however, so many requests from new subscribers for our Premium List, which is a supplement to our October number, that we have decided to extend the terms of our liberal offer to subscribers, which is as follows: Every new subscriber, English or German, for 1885, whose subscription is received at this office before December 1st, can have the October, November, and December numbers of this year, 1884, free.

This extension of course entails much additional expense upon us. We have to-day, for example, again put the forms of the *American Agriculturist* upon the press, and are striking off a heavy additional edition to meet the wishes of the new subscribers who want the October number, as well as the November and December of this year. Canvassers, Club Raisers, and those who are working for Premiums, ought to be able to readily induce people to subscribe, when the remainder of this year is given free to all new subscribers.

Our Great Special Present.

NOW READY.

It is not Chambers' Cyclopædia, Price, - - $25.00
It is not Johnson's Cyclopædia, Price, - - - $42.00
It is not Appleton's Cyclopædia, Price, - - $80.00
It is not the Encyclopædia Britannica, Price - $125.00

BUT THE

AMERICAN AGRICULTURIST

FAMILY CYCLOPÆDIA.

With over 700 Pages, 1,000 Engravings, and an Agricultural Supplement by the Editor-in-chief of this paper for nearly a quarter of a century, which is PRESENTED to every Subscriber, at $1.65, (English or German, old and new), to the American Agriculturist for 1885. More convenient for every-day practical purposes, than any one of the above expensive works. For full particulars see third cover page.

All explanations regarding the Postal Card Album Scheme only serve to render still more apparent the hypocrisy and treachery of the author. Anything which may now be said in extenuation, will not change the opinion of the newspaper press which declared itself so emphatically at the time the request to print the item was sent to Editors all over the country. One of them wrote us wishing to know if the "Postal Card Album Scheme was not a fraud," and requesting us to "give it a blast in our Sundry Humbugs." Another asked, "is this a square deal with you." A third wrote, "that the dodge was too thin." A fourth, "it looks like a bid for names, and is a *beautiful trick.*" A fifth, "we certainly have only a common interest in 'scotching' such aims." A sixth asked, "if the whole thing was not an attempt to appropriate the subscribers of the *American Agriculturist?*"

While the scheme was then thus regarded by contemporaries, they may now infer that it covered still another purpose, upon learning that on the 8th of January last, the officers of this Company, in a written communication, demanded that any lists of our subscribers surreptitiously secured, should be turned into this office within thirty-six hours. They have not yet arrived.

We do not now care to refer to the persistent but futile efforts made prior to that time to use the columns of the *American Agriculturist* for floating Sackett Plow and other personal schemes.

Will all subscribers receiving an extra October number, please give it to some friend or neighbor, who may be induced to become a subscriber?

Specimen copies of the *American Agriculturist* and special inducements forwarded to canvassers.

The Return of Joseph Harris.

When, after an intermission of several years, Mr. Joseph Harris resumed his connection with the *American Agriculturist*, and became one of our active editors last summer, the announcement was received with lively satisfaction wherever the *American Agriculturist* is read. Subscribers of former years who, for one reason or another had ceased to take the paper, but have now renewed their subscriptions because Mr. Harris has become one of the editors, express themselves in the warmest terms at the wonderful improvements made in the *American Agriculturist* since they were subscribers before. We propose to make the *American Agriculturist* still more valuable and attractive than it has been since last June, when, freed from all incumbrances, it entered upon a new career. Having relieved the Company from a very heavy load of debt, which they found saddled upon it when taking control some years ago, the present managers now have every facility in their power and no obstacles to prevent them from carrying out the largest plans for the future development and usefulness of the *American Agriculturist.* We aim to make this Journal, as in the past, the recognized leading agricultural authority of the world.

Our Advertising Patronage.

The remarkable display presented by our advertising columns during the recent period of depression is a marvel to other journals. The secret of this success is due not only to the large circulation of the *American Agriculturist*, but to the fact that we exclude from our columns all advertisements of a doubtful character. During the past year advertisements amounting to over $50,000 have been declined because we could not safely endorse the advertisers. We shall in the future adhere to the same restrictive policy.

Our Great Cyclopædia Offer.

Though at this writing it has been only four days since we began to deliver the FAMILY CYCLOÆDIA, which is presented to all subscribers of the *American Agriculturist*, old and new, for 1885, who immediately send us $1.65, we are **receiving gratifying responses** from those who have received the volume. Here are some of them:

GRANTSVILLE, Md., Oct. 9, 1884.
A very good book; quite useful both for old and young.
SAM'L. BEACHY.

MIDDLEBUSH, N. J., Oct. 7, 1884.
Cyclopædia gratefully received. Am well pleased with it. JACOB RYCHOFF, JR.

WALTHAM, Mass., Oct. 7, 1884.
The Cyclopædia came duly to hand; consider it well worth the price. EDW. R. HASTINGS.

DOBBS FERRY, N. Y., Oct. 7, 1884.
The Cyclopædia has come to hand all safe. A very handy book to have in the house. JOHN DUTCHER.

SCRANTON, Pa., Oct. 7, 1884.
The Family Cyclopædia received. I am well pleased with it. R. A. WILLIAMS.

INDIANA, Pa., Oct. 7, 1884.
Am well pleased with the Cyclopædia, and think it a model book of reference. JACOB A. HILE.

LEOMINSTER, Mass., Oct. 6, 1884.
Book received to-night; much pleased with it.
MRS. C. F. CONANT.

EASTON, Pa., Oct. 6, 1884.
Cyclopædia to hand this morning. I am well pleased; accept my thanks. D. L. BIXLER.

CAMDEN, N. J., Oct. 6, 1884.
Cyclopædia received, for which accept many thanks; it is highly appreciated. SAM'L. WILLS.

LEBANON, Pa., Oct. 6, 1884.
Cyclopædia received: am delighted with it; it ought to be in every family and home. HENRY S. HEILMAN.

BELL PORT, N. Y., Oct. 6, 1884.
Have this day received the Cyclopædia, and find it a very nice work, and think every family should try to obtain a copy. I. J. RAVEN.

GREENVILLE, Del., Oct. 6, 1884.
We each received the Cyclopædia; are very much pleased with it; thanks.
WM. WILSON and R. LEITHEAD.

SOMERVILLE, N. J., Oct. 6, 1884.
Received your Cyclopædia this morning; many thanks for the same. I think it will be very handy and instructive. THEODORE F. CORNELL.

BIRMINGHAM, Conn., Oct. 7, 1884.
The Cyclopædia came safe yesterday, and it is certainly a very useful book for any family. I am well pleased with it. S. G. SCOTT.

PHILADELPHIA, Pa., Oct. 7, 1884.
Cyclopædia came to hand safe, many thanks; it appears to be a very complete book. Wishing you much success for the year 1885, etc., EDWARD KLINE.

DEEP RIVER, Conn., Oct. 6, 1884.
Have received the two Cyclopædias. A very nice book. One was for a neighbor; he says it is a grand gift, and he will have more than his money's worth.
MRS. H. T. READ.

KATONAH, N. Y., Oct. 8, 1884.
I have taken the *American Agriculturist* for twenty-five years, and have never missed a number. I feel that I can not do without it. The Cyclopædia looks good.
JOSEPH W. ANDERSON.

CHADWICKS, Oneida Co., N. Y., Oct. 7, 1884.
I received your Cyclopædia to-day, and am very much pleased with it; it is something I have been looking for. I will distribute the circulars among my friends.
CHAS. W. COOKINHAM.

HINGHAM, Mass., Oct. 8, 1884.
I have received the Cyclopædia, and would say, that I am agreeably surprised at the reception of such an attractive looking volume, for I did not suppose as a gift it could be any more pretentious than a pamphlet.
HENRY W. CUSHING.

WEST CHESTER, Pa., Oct. 6, 1884.
We are in receipt of the Cyclopædia, and are surprised at the careful and complete manner in which it is printed and compiled. It certainly will prove very useful in every home. HOOPES BRO. & THOMAS.

W*H*Y

The American Agriculturist is better now than ever before.

First:—The *American Agriculturist* has been enlarged and vastly improved in all its various departments. It is now printed on super-calendered tinted paper with a glaze and finish which give clearness and distinctness to the type and illustrations.

Second:—In addition to the old staff of Editors and life-long contributors who have aided in making the Journal what it is to-day, new names have been added to our Editorial force, which will be still further strengthened with fresh acquisitions.

Third:—Joseph Harris, the founder of the "Genesee Farmer," author of "Walks and Talks on the Farm," etc., and whose agricultural writings have made him famous on both continents, has become one of the active Editors of the *American Agriculturist*.

Fourth:—The very note-worthy improvements made in the *American Agriculturist* since June last, embrace a complete transformation in the character of the illustrations. New and talented Artists have been employed, until the engravings and illustrations in the *American Agriculturist* have become, during the past four months, more numerous and far superior to those appearing in any similar publication. The *American Agriculturist* has for years been the recognized authority in all matters pertaining to agriculture; it has now, this year, become the first **Illustrated** Agricultural Journal of the world.

Fifth:—New methods and new agents for mailing have been employed, so that the *American Agriculturist* leaves the office as regularly as clock-work, and if any number fails to reach the subscriber, our new plan for discovery immediately makes known the cause.

Sixth:—The premium articles offered this year have been selected conjointly by the Editors and Publishers, to specially meet the wants of our great army of subscribers. While the list comprises very many new articles, those which have proved specially popular and desirable in the past are retained; all of them have been secured at great bargains, of which our subscribers get the benefit.

Seventh:—Every subscriber to the *American Agriculturist*, new or old, whose subscription for 1885 is forwarded immediately to us, together with $1.65, is entitled to the **New American Agriculturist Family Cyclopædia**, fully described on third cover page.

Eighth:—All **former**, or **new** subscribers, whose subscriptions and money are received before October 30th, will receive the October, November, and December numbers of this year free. Subscribe immediately.

50,000 Wanted.

Men, women and children, to canvass during the next few weeks for the *American Agriculturist*. Everybody who sees a copy of the paper, and the FAMILY CYCLOPÆDIA, which is presented with it, ought to be induced to subscribe without much talk or labor.

Our Great Premium List.

From every quarter we have received the most complimentary notices of our very handsome Premium List issued as a Supplement to the October *American Agriculturist*. Hardly forty-eight hours elapsed from the mailing of this premium list, before we began to receive orders for numerous articles among the very many offered. Our readers can rely upon their being just as represented. Please write us if any particulars are desired about any of the premiums. Furthermore, we shall be glad to ascertain for any inquirer the cost of freight or expressage on any article in the list which is not pre-paid.

The German American Agriculturist.

Have you any German neighbors? Have you any German gardeners or German workmen of any class in your employ? You cannot furnish them with more interesting and valuable reading matter than is contained in the columns of the *German American Agriculturist*. On landing here from the fatherland, the first money the German emigrant spends after paying his railroad fare, should be for a year's subscription to the *German American Agriculturist*. It aims to make them acquainted and familiar with the soil, and the best modes of farming and gardening in the new world to which they have come. Price, post-paid, $1.50 a year.

Our Very Latest Books.

Published, Imported, and sent post-paid on receipt of price.

Cats—Their Points and Classification, with Chapters on Feline Ailments and their Remedies, How to Train for Performing Tricks, etc., by W. Gordon Stables, M. D., etc. Since Cat Shows have become an institution in England and in this country, a cat literature follows as a matter of course. The work, the title of which we have given above, is a 12mo., of nearly five hundred pages, and illustrated by colored engravings of the different breeds. The author, who is a well known authority on Dogs, has brought together a large amount of cat lore, and relates many cat stories in an easy, talky manner. In what may be regarded as the practical portion of the work, is a chapter on "Classification and Points," another on "Tricks and Training," and that which will probably most interest owners of pet cats, one on Feline Ailments. Price, post-paid, $2.00.

Modern Window Gardening.—Treated under Aspects, North, South, East, and West, by Samuel Wood. The title of this work is rather a misnomer, as about two-thirds of its one hundred and seventy-six pages are devoted to out-door gardening, including the culture of vegetables. Being by an English author, and for the English climate, the work, if followed as a guide in this country, would mislead. If the difference in climate be kept in mind, and proper allowances made for it, the work will be found to contain many useful suggestions, and in its selections of plants is quite up to the time. Price, post-paid, $1.25.

Your Plants.—Plain and Practical Directions for the Treatment of Tender and Hardy Plants, in the House and in the Garden, by James Sheehan. The Orange Judd Company, New York: The above title well describes the character of the work—"Plain and Practical." The author, a commercial florist and gardener at Geneva, N. Y., has endeavored, in this work, to answer the many questions asked by his customers, as to the proper treatment of plants. The book shows all through, that its author is a practical man, and he writes as one with a large store of experience. The work better meets the wants of the amateur who grows a few plants in the window, or has a small flower garden, than a larger treatise intended for those who cultivate plants upon a more extended scale. The appearance of the work, just as window gardeners are setting their plants in order, is timely, and it will prove to be the book they have been looking for. Paper covers, post-paid, for 40 cents.

Tobacco Culture.—A New and Enlarged Edition. Orange Judd Company, New York: The *American Agriculturist* offered prizes for the best essays on Tobacco Culture, with a view of obtaining an exhaustive treatise for publication in its columns. A large number of essays were received, including many of great value. Fourteen of the number were selected and published in pamphlet form. Another edition is now in press, enlarged by the addition of a chapter on the Manufacture of Tobacco. This chapter was written in answer to the numerous inquiries regarding the conversion of the leaf into its manufactured forms. Price, post-paid, 25 cents.

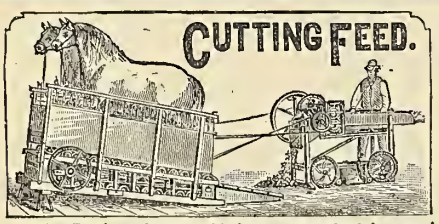
The Practical Poultry Keeper.—A Complete and Standard Guide to the Management of Poultry, for domestic use, the markets, or exhibition, by Louis Wright. New Edition, with colored plates. The Orange Judd Company, New York: As a rule, an English work upon any rural subject is unsuited to Americans. The book, the full title of which is given above, is a marked exception to the rule. When the work first appeared, it was found to be so practical and altogether so excellent, that the publishers at once arranged to publish an American edition, and it immediately took its place as a standard work on Poultry. Successive editions have been published, and the last, with colored plates of the leading breeds, is more complete as well as more elegant than any of its predecessors. The author treats all that relates to poultry-keeping in a common sense manner, as rare as it is acceptable. If there is a better work on Poultry, we are unable to name it. Price, post-paid, $2.00

The Forester.—A Practical Treatise on the Planting, Rearing, and General Management of Forest Trees, by James Brown, LL. D., Inspector of Woods and Forests, Port Elgin, Ont. This is a large 8vo. volume of about nine hundred pages. The fact that a work of this size has reached a fifth edition, indicates to a certain extent that it has real value. The subject is treated in its various branches, and is well illustrated. We are surprised, that at this day an author should classify trees or other plants by the Linnæan System. This, however, does not affect the practical character of the work. In the present interest in Forestry in this country, every work of real value is welcome. As the author has had a Canadian experience, the book is more likely to be suited to the United States than one by an author with an exclusively European training, Price, post-paid, $10.00.

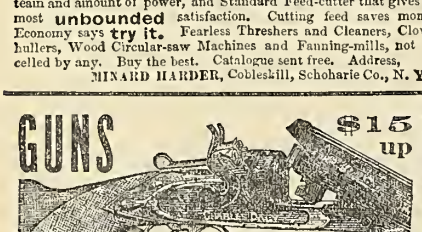
Forest Leaves.—Their Value.—"The sere and yellow leaf" is here once more, strown in profusion under the shade trees, and in the forests and wood-lots. Leaves are rich in plant food, and will pay well for gathering. They are always a valuable addition to the compost heap, almost indispensable in the hot-bed, and a convenient bedding for pigs and in the stables. If raked up in large heaps before the snow falls, they can be taken in at leisure intervals during the winter as they are wanted. But it is better to have them stored under a shed or out-building, or near the stables. With a suitable box-cart, and large wooden forks made for the purpose, leaves can be gathered quite rapidly. They make a soft, warm bed, promote the comfort and thrift of cattle, and in this way save food. The leaves left in the street, or by the roadside, have an untidy air and go to waste.

The Ives and other Grapes.—In mentioning in July last that the Ives had uniformly failed with us, we suggested that the experience of one's own locality was the only safe guide in the selection of varieties to plant. Apropos of this, Horace Lloyd, Chester County, Pa., writes us that with him the Ives is a strong grower, an abundant bearer, though he regards it of poor quality, except for wine. He is especially pleased with the Brighton as a vigorous and prolific vine, and he considers the quality as best. We regard the Brighton as destined to be a most popular grape when it is better known. The Hartford Prolific, Mr. Lloyd thinks well of as an early variety. Its chief fault is the dropping of the fruit when ripe. Close pruning and training remedy this, but it is inferior to the Adirondack and Creveling, both of which do well with us in the same vineyard where the Ives persistently fails.

Cream Turning Blue.—J. H. Hartman, Berks, Pa., asks us: "Why does the cream turn blue on top in arch-cellars?"—Your arch-cellars are not well ventilated. To cure the trouble, there must be a free, though not necessarily strong current of air over the cream and milk, even though the cellar should be several degrees warmer than now. The blue color is from minute mould plants, which are not only on the surface, but penetrate all the upper part of the cream with fine threads. The blue particles are, we may say, only the blossom and fruit of the mould field. The first thing for you to do is to secure ventilation; then dry off the cellar, sweeping the walls, and scraping and sweeping the floor. Scatter dry-slaked lime over the floor, and sweep it about until the floor is white with it; then whitewash the walls and top of the arch-way of the cellar, shelves, supports, racks, etc. This will kill the mould. Then whenever you add fresh cream stir thoroughly all the rest, whether in the same pot or in others, and you will have no more blue-topped cream.



Fearless Two-horse Power, positively **unequaled** for ease of team and amount of power, and Standard Feed-cutter that gives the most **unbounded** satisfaction. Cutting feed saves money. Economy says **try it.** Fearless Threshers and Cleaners, Clover-hullers, Wood Circular-saw Machines and Fanning-mills, not excelled by any. Buy the best. Catalogue sent free. Address,
MINARD HARDER, Cobleskill, Schoharie Co., N. Y.



OUR LEADER a good **IMPORTED** pistol grip, rebounding lock, double barrel breech loader, with loading Tools complete, **$15.** We are prepared to offer the lowest prices ever named at retail on **RELIABLE** goods. Send postal for large Illus. Catalogue of Fire arms and Sporting goods, sent **FREE.**
C. E. OVERBAUGH & CO., 265 & 267 Broadway, N. Y.

☞ **FRIENDS** If you are in any way interested in
BEES OR HONEY,
We will with pleasure send you a sample copy of our **SEMI-MONTHLY GLEANINGS IN BEE CULTURE,** with a descriptive price-list of the latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all books and journals, and everything pertaining to Bee Culture. *Nothing Patented.* Simply send your address on a postal card, *written plainly*, to **A. I. ROOT, Medina, Ohio.**

Prof. Duncan Campbell, M. D., LL.D., F. R. S., President Royal College of Physicians and Surgeons, Member General Council University of Edinburgh, &c., &c., says:

"**Liebig Co.'s Coca Beef Tonic** has more than realized my expectations."

PROF. JOHN M. CARNOCHAN, M. D., Surgeon-in-Chief, New York State Hospital, Professor Surgery New York Medical College, ex-Health Officer, Port of New York, &c., says:

"My patients derive marked and decided benefit from the **Liebig Co.'s Coca Beef Tonic.**"

PROF. C. H. WILKINSON, Editor Medical and Surgical Journal, says:

"**The Coca Beef Tonic** of the Liebig Company, combined as it is with Coca, quinine and iron, forms a most valuable adjunct to the practice of medicine. From the experience we have had with it, we are forced to speak in its favor and to recommend its use. Beef, iron and quinine cannot be surpassed by any other three ingredients in or out of the dyspensatory for invigorating an enfeebled system, and when such remedies can be obtained combined from so reliable a house as Liebig's, it behooves the profession to patronize the same to the fullest extent."

"You have succeeded in placing in our hands one of the most effective of tonics. I cannot conceive of a better combination than the nutritive essence of sound, healthy Beef and Coca, dissolved in a reliable sherry," says:

PROF. F. W. HUNT, M. D., New York, formerly Professor of Materia Medica and Medical Botany, Honorary Member Imperial Medical Society of St. Petersburg, Russia, &c., &c.

Coca Beef Tonic embodies the nutritive elements of the muscular fibre, blood, bone, and brain of carefully selected healthy bullocks. It also embodies the tonic virtues of the Coca or Sacred Life-Plant of the ancient Incas, the two (the Beef and the Coca) *being dissolved in a choice quality of sherry wine. It is the most perfect nutritive reconstructive tonic ever offered to the medical profession and public.*

"A very strengthening tonic," says
PROF. COLPAERT.—Bulletin Generale de Therapeutique.

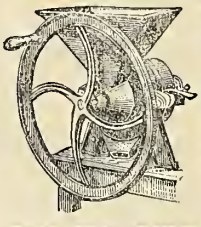
Coca Beef Tonic is a purely natural and easily digested tonic for invalids, dyspeptics and all who are run down and debilitated. It is a valuable aid to convalescents. It is in every sense of the word a revitalizer, reconstructer and force generator. It is a boon and a blessing to brain-workers who need a tonic devoid of unpleasant reaction.

The Journal of the Royal Society of Vienna says:
"It is remarkable that the Indians never suffer with consumption, and the cause of it is the use of Coca. They reach a very old age, and frequently pass their full century."

DEDHAM, Mc.

TO THE LIEBIG COMPANY:
Gentlemen.—Your agent left me a bottle of your Coca Beef Tonic for me to try. I took it myself, as I had been sick for a number of months with a lung affection and was not able to practice. It helped me very much—so much so that I am now about as well as usual. I have since given it to a number of patients, and it has benefited every case. I am indeed most thankful that it came to my hands. *I had tried different preparations of Coca before, but had no effects from them.* H. S. PHENIX, M. D.

Be sure to ask for **Liebig Co.'s Coca Beef Tonic.** Refuse artfully named, inferior preparations. Price One Dollar. N. Y. Depot, 38 Murray street.



Farm Grist Mills
and Corn Shellers.
Over 30,000 Now in Use.
Every Machine is fully Warranted. Price of Mills, $15 to $40. Shellers, $5. Don't buy a **Mill** or **Sheller** until you have seen our terms and Illustrated Circular. Address
LIVINGSTON & CO.,
Iron Founders, Pittsburgh, Pa.



CORN SHELLER!
(Wood's Patent.)
Will shell one bushel of Corn in 4 minutes.
Write for circulars and full particulars to
Lehigh Valley Emery Wheel Co.
LEHIGHTON, PA.

HATCHING CHICKENS!!



Long looked for—come at last! The
PACIFIC INCUBATOR
will hatch eggs *better* than a hen. Simple! compact! reliable! and cheap!
Sole Agents and Manuf'rs East of the Rocky Mountains,
HENDERSON & STOUTENBOROUGH,
M'f'rs & Jobbers of House-furnishing Goods, Japanned & Hotel Ware, 270 & 272 Pearl St., N.Y.City. Send stamp at once for Illustrated Circular giving full particulars.

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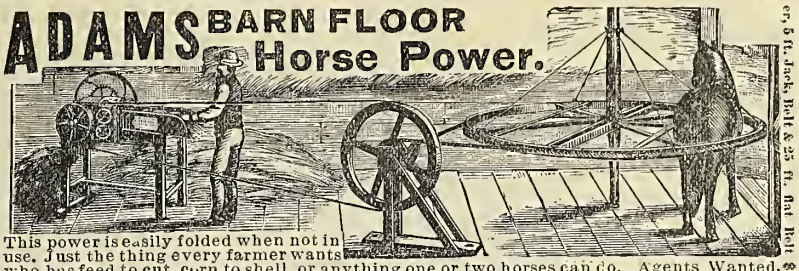
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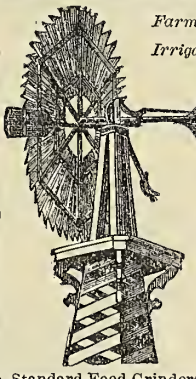
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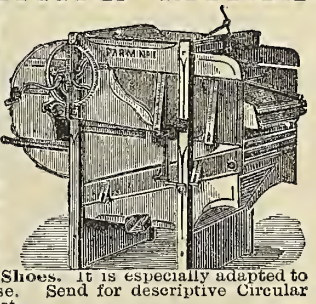
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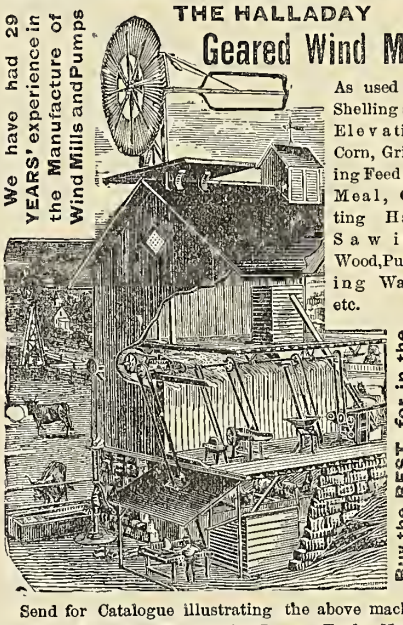


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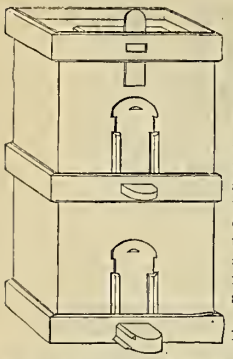
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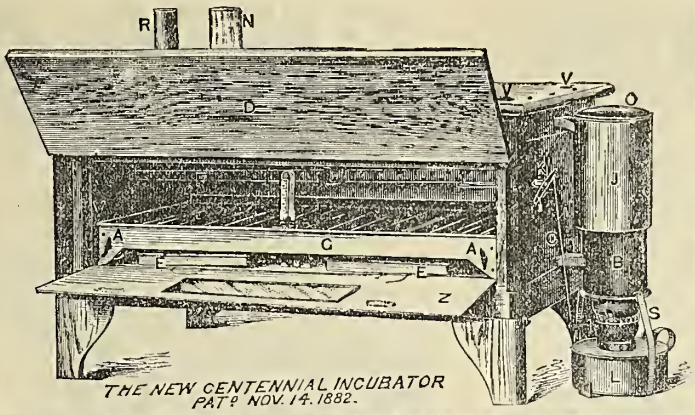
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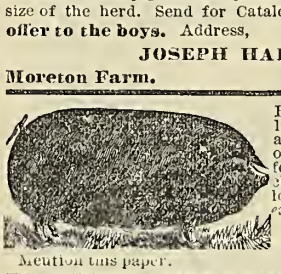


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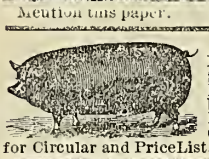
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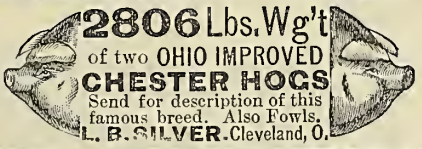
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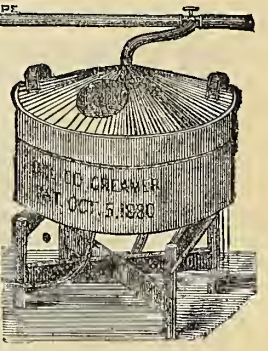
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Dirk, derk. A dagger formerly much used in the Highlands of Scotland, and still worn as essential to complete the Highland costume.



Dirk.

Dirt-eating, dert'ēt-ing. Cachexia Africana, a disorder of the nutritive functions among negroes, and in certain kinds of disturbance of the feminine health, in which there is an irresistible desire to eat dirt. The practice of some tribes of S. America, of using certain kinds of clay for food.

Discharger, dis--chärj'or. In Elect. an instrument for discharging a Leyden jar, &c., by making a connection between the two surfaces. In calico printing, a discharge.



Leyden Jar with Dischargor.

Discharge-valve, 'valv. In steam-engines, a valve which covers the top of the barrel of the air-pump and opens upward.

Discharging Arch, 'ing ārch. An arch formed in the substance of a wall to



Discharging Arch

relieve the part which is below it from the superincumbent weight, commonly used over lintels and flat-headed openings.

Discipline, 'i-plin. Education; instruction; training. Rule of government. Subjection to rule. Correction; punishment inflicted by way of correction and training: instruction by means of misfortune and the like. In the R. C. Ch. bodily punishment inflicted on a delinquent; or that external mortification which a penitent inflicts on himself. The scourge a delinquent uses in self-chastisement; or that wielded by his confessor. Books of discipline, two books drawn up for the reformation of the Scotch Church—the first by Knox and four other ministers in 1560, the second by a committee of Assembly of 1578, in which Andrew Melville took a leading part. This is still appealed to as the most complete and authoritative exhibition of Scottish Presbyterianism.

Dischidia, -kid'-i-a. A gen. of Asclepiadaceæ, herbs or under shrubs. One species, D. Rafflesiana, is remarkable for its numerous pitcher-like appendages.



Dischidia Rafflesiana.

Disciples of Christ (Campbellites). An independent sect holding views substantially identical with the Baptists, founded in the U. S., 1809, by Rev. Thomas Campbell, a distinguished preacher of the Presbyterian church, from which he seceded, and his son, Rev. Alexander Campbell, both natives of Ireland. The sect numbers nearly three-quarters of a million communicants, most of them being in the S. and W. States.

Discobolus, -kob'o-lus. In Class. Antiq. a thrower of the discus or quoit; a quoit-player. The name given by Cuvier to his 3d family of soft-finned teleostean fishes. The lumpfish (Cyclopterus Lumpus) is a good example of the group.



Discobolus throwing the Discus.

Discophora, -kof'ō-ra. A sub-class of the Hydrozoa, comprising most of the organisms known as sea-jellies, jelly-fishes or sea-nettles. A name sometimes given to the order of annelids, Hirudinea, to which the leech belongs.

Friction-balls, -balz. Balls placed under a heavy object to reduce the friction, while that object is moving horizontally. Some swing-bridges have such balls placed under them.

Friction-clutch, -kluch. A species of loose coupling much used for connecting machines which require to be frequently engaged and disengaged, or which are subject to sudden variations of resistance.

Friction-cones, -kōnz. In Mach. a form of slip-coupling, which allows the cones to slip on any extreme pressure being applied.

Friction-coupling, -kup'ling. A form of coupling in which two shafts are connected by friction, as in the friction-clutch and friction-cones.

Friction-powder, -pou-der. A composition of chlorate of potash and antimony, which readily ignites by friction.

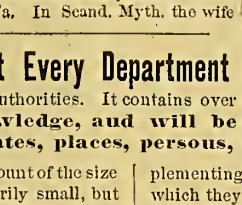
Friday, frī'dā. The 6th day of the week. Good F., the Friday immediately preceding Easter; which is kept sacred, in memory of the sufferings and death of Christ, as it is believed to be the anniversary of the day on which he was crucified.

Friedland, frēd'lahnt. A town of E. Prussia, 36 m. S. E. of Königsberg, noted for the great victory, June 14, 1807, of the French under Napoleon I. over the allied Russian and Prussian armies, resulting in the treaty of Tilsit.

Friendly Islands (Tonga). An archipelago of the S. Pacific, of which Tongataboo is the chief island; pop. abt. 25,000.

Friend, frend. One of the Society of Dissenters, which took its rise in England about the middle of the 17th century, through the preaching of George Fox.

Frieze, frēz. In Arch. that part of the entablature of a column which is between the architrave and cornice. It is a flat member or face, usually sculptured.



Frieze.

A coarse woolen cloth having a shaggy nap on one side, extensively manufactured in Ireland.

Frieze-panel, 'pan-el. One of the upper panels of a door of six panels.

Friga, frig'a. In Scand. Myth. the wife of Odin, a goddess corresponding in some respects to the Aphrodite of the Greeks and Venus of the Romans. Called also Freya.

Frigate, frī'gāt. A war vessel larger than a sloop or brig, and less than a ship of the line; usually carrying thirty to sixty guns on the main deck and on a raised quarter-deck and forecastle, or having two decks. Since the introduction of iron-clad war vessels the term has been applied to those having a high speed and great fighting power. Double-banked frigates, such as carried guns on two decks and had a flush upper-deck. Steam frigates, large steamships carrying guns on a flush upper-deck, and having a tier also on the lower deck.



Frigate.

Frigate-bird, -berd. The name given to a genus of tropical birds (Tachypetes), pelican fam. (Pelicanidæ), and allied to the cormorants; a man-of-war bird.



Frigate-bird.

Frigid Zone, frij'id. A space about either pole of the earth, terminated by a parallel of 66½° of latitude, known as the polar circles. At the pole the sun is visible for half the year and invisible the other half.

Frimaire, frē-mār. The 3d month of the French republican calendar, dating from September 22, 1792. It commenced November 21, and ended December 20.

Fringe, frinj. An ornamental appendage to the borders of garments or furniture, consisting of loose threads. The use of fringes is of very great antiquity, as shown by the dresses of figures on the ancient



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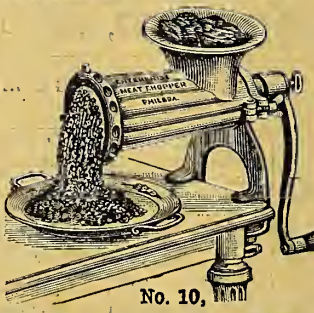
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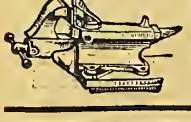
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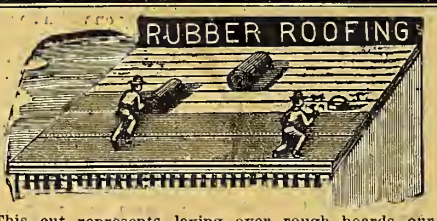
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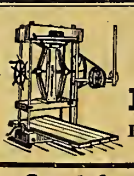


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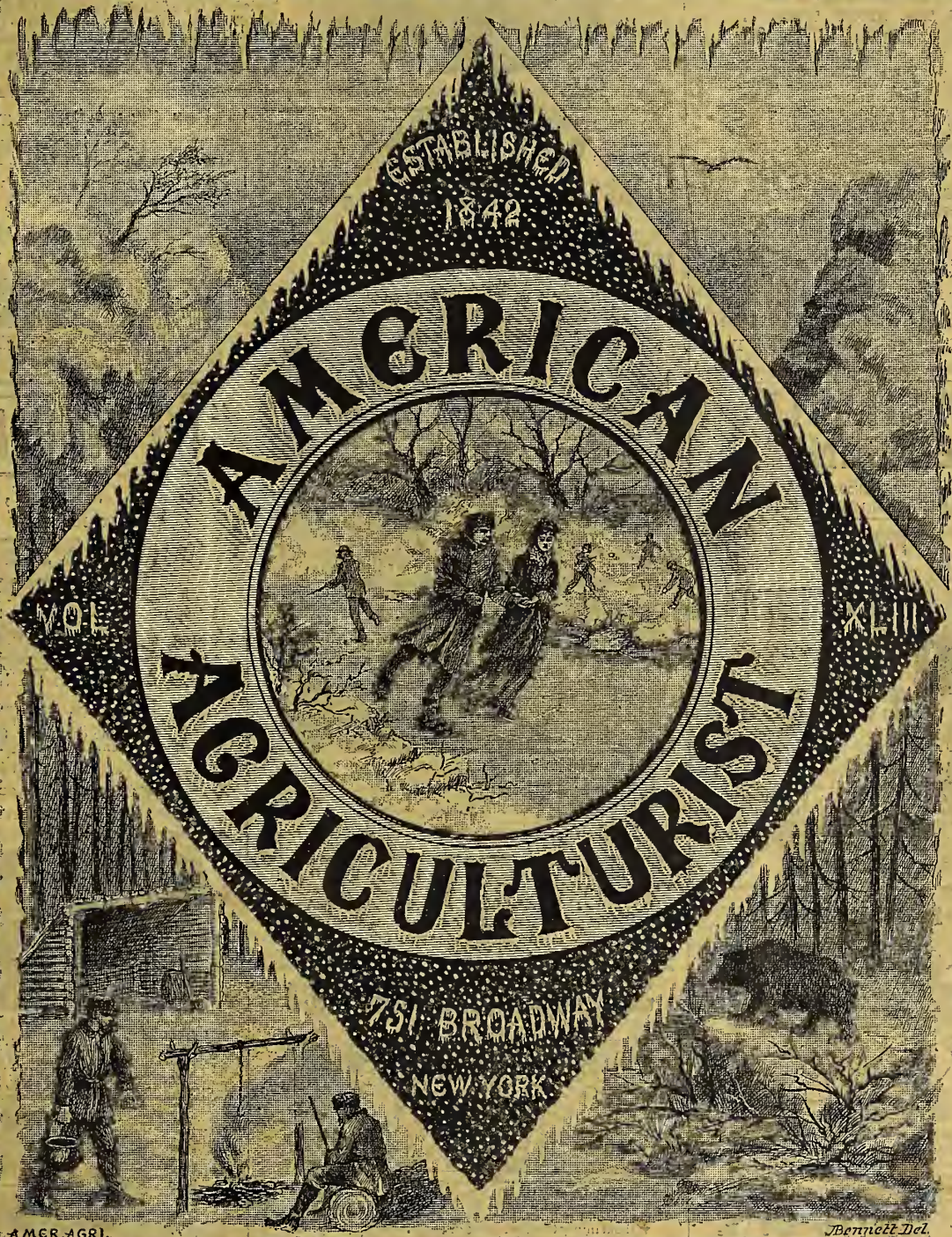
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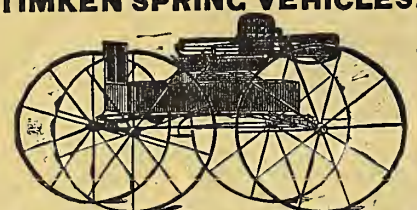


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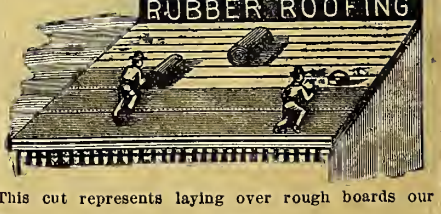
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VOLUME XLIII.—No. 12. NEW YORK, DECEMBER, 1884. NEW SERIES—No. 455.



The flowers and fruits have long been dead,
Not even the daisy is seen.—ELIZA COOK.

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Contents of this Number.

Among the Farmers..... 543
Animals, Feeding and Care of 3 *Illustrations*.. 542
Apples, Do, Hurt Cows?..... 533
Apples, The Exportation of..... 534
Ashes and Manure..... 544
Banks of Streams, Care of. 2 *Illustrations*.. 539
Baskets, Hanging..... 547
Bee Notes for December.....*Illustrated*.. 527
BOYS' AND GIRLS' COLUMNS:
The Doctor's Talks. 4 *Illustrations*.. 550
Christmas Surprises..... 550
An old Puzzle.....*Illustrated*.. 550
The Rock Kangaroo..*Illustrated*.. 550
Square Puzzle.....*Illustrated*.. 551
Wing Foo's Christmas Tree...*Illustrated*.. 551
Cabbages, What to do with?..... 528
Camellias..... 537
Capons, Why?..... 528
Carrots, Wild, How to Exterminate..... 529
Cattle, Connecticut Red.....*Illustrated*... 541
Cholera, Hog and Corn 533
Chrysanthemums as Window Plants..3 *Illustrations*.. 538
Clyster, Apparatus for.....*Illustrated*.. 543
Cottage, A, Costing $1,500.....4 *Illustrations*.. 536
Cuttings in Window Garden.....*Illustrated*.. 540
Dakota, What Can be Raised in..... 536
December Days.....*Illustrated*.. 539
Derrick, A Fixed Boom..... 2 *Illustrations*.. 529
Ducks, Pekin..... 542
Evergreens, Broad-leaved, etc..... 535
Farmers, Among the..... 543
Farm Work for December..... 526
Fertilizers, Scattering by Hand..... 540
Food, Cooking for Swine..... 527
Frost and Snow.....*Illustrated*.. 537
Garden, Flower and Lawn..... 527
Garden, Starting a Farm..... 547
Gas Tar and Its Uses..... 538
Grain, Does it Pay to Grind?..... 539
Grape, The New White—The Niagara...*Illustrated*.. 547
Green, Seth—His Ways and Works..... 544
Greenhouse and Window Plants..... 527
Hens, A Good Ration for..... 529
Hooks, Hay and Straw.....3 *Illustrations*.. 531
Horse Physiognomy.....4 *Illustrations*.. 534
Horses, Getting into Condition... 543
HOUSEHOLD:
Notes of Fashion..... 548
Slipper Case, An Ornamental.....*Illustrated*.. 548
Secretary, A Cheap Home-made.....*Illustrated*.. 548
Cards, Christmas, Made at Home..... 548
Scarf, A Piano.....*Illustrated*.. 548
Syrup, Delicious Lemon..... 548
Christmas Tree, How to Dress the..... 549
Table Cover, An Inexpensive.*Illustrated*.. 549
Christmas Decorations..... 549
Panels, Birch Bark.....*Illustrated*.. 549
Hydrangeas, Blue..... 540
Insect, New to New York State ..2 *Illustrations*.. 531
Ivies, Growing and Training..... 540
Land, Renting on Shares..... 535
Light in Winter Quarters..... 542
Manure for Potatoes..... 533
Milk-Fever, How to Prevent..... 528
Mule-Raising, A New Departure in.....*Illustrated*.. 528
Mutton and Milk..... *Illustrated*.. 531
Nitrate of Soda..... 546
Notes of a Trip West..... 553
Nut, A New Pecan..... .2 *Illustrations*. 546
Onions, The Cultivation of..... 547
Oxen, Connecticut Red.....*Illustrated*.. 541
Parks, Public,—The Crotona.....*Illustrated*.. 535
Passages in Wire Fences.....*Illustrated*.. 545
Pear, A New Seedling..... 534
Pigs, Keep the, Warm... 2 *Illustrations*.. 528
Plants for Window Culture..... 538
Poultry, Feeding and Care of 3 *Illustrations*.. 542
Poultry, Provide Green Food for.. 541
Praise, High, from a High Quarter..... 537
Presents, About Boys' Christmas.....*Illustrated*.. 538
Products, Finished..... 533
Rust and Mildew of Wheat.....4 *Illustrations*.. 544
Soap, Vegetable and Horse-hair.....*Illustrated*.. 545
Stand, A Simple Plant.....*Illustrated*.. 545
Stiles and Gate..... 6 *Illustrations*.. 533
Swine, Cooking Food for..... 527
Swine-Farming..... 529
Swine, Litter Lightly..... 539
Table, A Convenient Assorting...*Illustrated*.. 543
Teasels and their Culture..... 534
Types of Animal Excellence.....2 *Illustrations*.. 530
Tie, Improved Cattle.....*Illustrated*.. 542
Walks and Talks on the Farm..... 532
Walks, Straight or Curved..... 5 *Illustrations*.. 546
Wardian Cases, Jardinieres, etc 540
Wheat and Meat—A Conversation..... 545
Wheat Rust and Mildew.....4 *Illustrations* 544
Worm, The Fall Army.....*Illustrated*.. 531
Winter in the Country....*Illustrated*.. 525
Withes... 3 *Illustrations*.. 529

For Editorial Correspondence, Chats with Readers, Humbug Exposures, Book Reviews, and other interesting matter, see page 553 and onward to the end.

December.

Announced by all the trumpets of the sky,
Arrives the snow, and driving o'er the fields,
Seems nowhere to alight; the whited air
Hides hills and woods, the river, and the heaven,
And veils the farm-house at the garden-gate.
—EMERSON.

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1884  1885

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Every subscriber to the *American Agriculturist*, every canvasser, every club raiser, and every one generally, who is interested in its prosperity, will **please turn immediately** to page 562 of this issue.

Will all the subscribers to the *American Agriculturist*, who have received extra October and November numbers, please hand them to friends and neighbors.

A Supplemental Premium List.

We presented our readers, in connection with the October number, the most artistic, attractive, and freshest Premium List ever issued. Notwithstanding the articles were so numerous and adapted to every taste, we now, with this December issue, add two more pages of desirable premiums for those who secure subscribers to the *American Agriculturist*. Like those contained in the October Supplement, these new premiums have been selected with great care, and our readers can rely upon their being as represented; they number right on from those in the October Supplement. If any of our readers have mislaid the latter, they can send stamp for mailing another.

Our Family Cyclopædia.

Read elsewhere the gratifying testimonials regarding the Family Cyclopædia, presented to subscribers of the *American Agriculturist* for 1885.



Boiled small potatoes, mixed with meal, will cause pigs to grow and fatten. Give horses cut feed in the winter. Cut the hay and oat-straw together, and sprinkle on the meal; it saves the hay, utilizes the straw, and the meal itself does better service. Corn stalks should be cut for cattle. If you own an old horse, that has barely lived through the summer, it would be an act of mercy to put him out of the way now. He would otherwise eat a ton or more of hay before spring opens, and then be worthless. Keep salt before the cattle, or at least so convenient to them, that regular "salting" will not be forgotten. Farmers should make a careful study of the feeding of store cattle. They make a mistake who feed simply to keep the animal alive through the winter. It requires two-thirds of a full ration to sustain life without growth, whereas the other third will produce growth, and yield a profit on all the feed. The animal, which comes out in good condition in the spring, has a long way the start of one that, from insufficient food, must take a month on grass to get thrifty again.

Do not delay filling the ice-house, for a single day, after the ice is six inches thick and of good quality. Get out the year's supply of fire wood, and any logs needed for timber, lumber, etc.

Orchard and Fruit Garden.

Gather up all stakes, labels, boxes, and store whatever may be of future use, and make kindling wood of the rest....Surface drainage should be provided to carry off water from rains and thaws. Young trees planted last fall or spring, need a mound of earth at the base of the trunk, to steady them against the heavy blows, and also help to keep off mice....Cut cions in mild weather, always taking vigorous last season's shoots. Pack with sawdust or moss, first carefully labelling them....Strawberry beds, if not yet protected, should be covered with straw, bog hay, or leaves.... Prune in mild spells, currants, gooseberries, grapevines, etc....If trees or small fruits are to be planted next spring, decide upon kinds, where they are to be bought, and order early....Fruit, if stored in the house cellar in large quantities, may give off so much carbonic acid as to contaminate the air of the rooms above. Provide ventilation, connecting with a chimney if possible. Keep a thermometer in the fruit cellar to aid in maintaining a low temperature—just above freezing.... Manure should be drawn to the orchard while the ground is frozen, ready for spreading in early spring....Gates and fences should be in condition to keep out animals....Rabbits are most readily kept from young trees, by sprinkling the trunks with blood. Set traps....The eggs of the tent caterpillar, which are glued to the twigs in a band near their ends, should be cut off and destroyed.

The Kitchen and Market Garden.

In most localities the weather has been favorable for doing spring work in the fall. Continue in mild spells, to do whatever will save time in the busy days of next spring....Cold frames, in a mild winter, require close watching. If the temperature is but slightly below freezing, air must be given

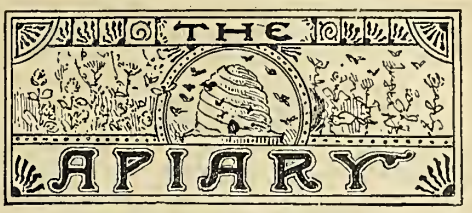
every day. If the plants are not frozen when snow falls, the glass should be cleared of snow soon afterwards....Spinach, kale, and onions, that are now in the ground, should have a moderate covering of straw, bog hay, or leaves. Roots in pits, and celery in trenches, will need more covering up as the weather grows colder....Parsnips and salsify, if needed before spring, may be dug during the thaw that usually occurs this month, as also may horseradish....It is poor economy to sow seeds of uncertain quality. Overhaul the stock on hand, and reject all that are doubtful. Determine what seeds are to be bought, and order them. While parsnips, onions, and a few other seeds are uncertain if not of the growth of the previous year, cucumbers, squashes, and all of that family, will remain good for many years....Every source of manure supply should be watched, and nothing allowed to go to waste that will increase the value of the compost pile. The market gardener should be acquainted with all the manufactories in the vicinity, and ascertain the character of their refuse, with a view to securing it if of value....Have all the implements in good working order. If any are beyond repair, procure new ones. Make all home-made appliances, such as markers, dibbles, etc. Secure labels, tying materials for bunching vegetables, baskets, boxes for raising seedlings, etc., etc.

Flower Garden and Lawn.

But little can be done here save to prevent injury to trees, etc. Have the snow plow in motion soon after a storm, as the labor of opening paths is much less when the snow lies lightly. Evergreen trees and hedges are often injured by snow, which collects in and breaks them. Shake or beat out accumulations of snow, before they harden. All proposed improvements in the grounds may be leisurely considered at this season, and if a plan of the grounds is made on paper, drawn to a scale, it will greatly facilitate doing the work next spring.

Greenhouse and Window Garden.

A sudden cold snap, or "cold wave," as it is now termed, is liable to come at any time during the winter, and must be guarded against, in the greenhouse by attention to the fire, and in the dwelling by moving the plants away from the windows, to the middle of the room....Dryness of the air is the chief obstacle to successful window gardening. Plants succeed much better in the kitchen than in the parlors, as the air is charged with moisture from the cooking, etc. If the house is heated by a furnace, there should be a pan for evaporating water in the furnace, kept well supplied. If stoves are used, keep vessels of water on them....Dust is injurious to plants. Much may be prevented from settling on the leaves by covering the plants with a light fabric whenever the rooms are swept. All smooth-leaved plants, like the ivy, camellias, etc., should have a weekly washing with a damp sponge. The others may be placed in a sink or bath tub, and given a thorough showering....Water should be given as needed, whether daily or weekly. Do not water until the soil is somewhat dry. Keeping the earth constantly wet, soon makes unhealthy plants. Let the water be of the same temperature as the room. Hanging plants dry out rapidly. Plunge the pots or baskets in a pail or tub of water, and after they have ceased to drip, return them to their places....The so-called green-fly, or plant louse, is easily killed by tobacco water. Apply this when of the color of weak tea. Red spider is very minute, and works on the lower sides of the leaves. When these turn brown, the spider may be suspected. Give frequent showers, laying the pot on the side, and apply water with the syringe. Scale insects, and mealy bug, are best treated by hand-picking, before they become numerous....Chrysanthemums, when through flowering, should have the stems cut away, and the pots of roots taken to the cellar....The pots of bulbs which were placed in the cellar or in a pit, for roots to form, may be brought to the window, and as they grow, give an abundance of water. If needed, support the heavy flower spikes of hyacinths by a small stake.



Bee Notes for December.

Preparing for Another Season.—The bees have now settled down for the winter, and should not be disturbed. Now is an excellent time to prepare for another season. Some dealers in supplies sell their wares at a discount during the winter; advantage should be taken of this, and everything that will be needed another season ordered in one lot. If the goods are sent as freight, the charge will be light. Build hives, cases, shipping-crates, etc., and make sections; fill them with foundation; place them in the cases, and pack everything snugly away for the next season. All this is pleasant work, if one has a neat, warm shop.

Observatory Hives.—The engraving shows a single frame observatory hive, that the writer has several times exhibited at fairs, where it was constantly surrounded by an interested crowd. The hive revolves upon its stand, and can be turned in the direction to secure the best light, which greatly assists visitors in "finding the queen." The words were made by cutting out letters of gilt paper, and fastening them on with paste. In a hive of this kind, if the bees are allowed to fly, the queen can be seen depositing eggs, with workers always surrounding her, offering her food, and patting and caressing her with their antennæ. The nurse bees may be observed feeding the larvæ, which increase in size, until each nearly fills its cell, when the bees seal it over. The operation of sealing, and that of the young bees biting their way through the cappings, may be watched in such a hive. The young bees crawl forth as soft and downy as young chickens. Should the queen be removed, there could then be witnessed the building of queen



AN EXHIBITION HIVE.

cells, and, later on, the hatching of the young queens, and the royal combats that result in the "survival of the fittest." Except when upon exhibition, the glass sides of an observatory hive should be covered with wooden shutters, to exclude the light. To furnish the bees with an entrance, a hole can be bored down through the standard, upon which the hive turns, and a tube connected with it, and passing out through the side of the house. The bees will pass in and out through this.

Apiarian Exhibits at Fairs.—The most liberal premiums for Apiarian Exhibits offered at any fair in the country, have, of late, been those of the Michigan State Agricultural Society. As the result, Michigan has made the grandest display in this line ever seen in the United States. A large share of the preparations for a fine display at an apiarian exhibition can be made during the winter. A few hints are here given from the writer's experience as an exhibitor: Articles that are liable to damage from "punching," or "fingering," should be shown under glass, likewise those that can be stolen. Comb-honey, packed in crates with glass sides, and piled up in the form of a pyramid, makes a fine display. Extracted honey shows to the best advantage stored in glass, and the vessels containing it built up in the form of a pyramid, or upon pyramidal-shaped stands or shelves. If placed immediately in front of a window, its beauty is increased. Full colonies of bees should be shown in hives with glass sides, and the whole surface, both above and below the combs, may be covered with wire cloth, and a space of three inches left between the combs and the wire cloth. The bees should be given a little water occasionally, and, if possible, allowed to fly near the close of day, as often as once in two or three days. Lettering the hives, as shown for the Observatory hive, will add to their beauty, and save answering the question, "what kind of bees are these?" All exhibits, that require explanation, should have descriptive placards attached. It saves talking, and increases the educational value of the exhibition. Beeswax looks well molded in different sized vessels, then piled like a pyramid, the "peak" being surmounted by some fanciful object made of wax, as for example, an old-fashioned straw hive. To prevent cracking, large cakes of wax require cooling very slowly. Large articles, such as hives, comb foundation machines, honey extractors, etc., are shown upon a platform or table, but queen cages, honey knives, bee veils, and such small wares, had better be exhibited in a show case. Perhaps the most important work that can be done this winter, is to secure the offering of appropriate premiums. The executive boards of most Agricultural Societies will meet within the next two months, and if the matter is properly brought before them, they will be likely to make a revision of the list, and increase the amount of premiums offered for apiarian exhibits, to an amount corresponding to the importance of the department.

Cooking Food for Swine.

The cost of pork is greatly lessened by cooking the food for the hogs. Wormy apples, small potatoes, etc., will pay handsomely for the trouble of cooking. It is the greatest fault of our pork production, that we feed corn almost exclusively. This motonous diet, rich in oil, must jeopardize health. It is as if a man ate nothing but fat meat or corn-bread. The value of cooked food does not depend altogether upon its nutritious contents. In cold weather much good is done by feeding hogs heated food. It warms up the body, and stimulates the digestive organs to vigorous action. It pays always to warm slops in cold weather. The main reason farmers do not feed more cooked food to their swine, is fancied labor and trouble of preparing it. A good utensil is a large iron kettle, swung upon two poles of sufficiently strong wood. The bail is removed, and a piece of chain, forming a loop a foot long, is passed through each eye of the kettle, and over the respective pole. The poles are placed on forked sticks, set in the ground. The poles should be parallel, and as far apart as are the eyes of the kettle. Place near the kettle a large, light trough, made of two-inch pine boards, which may be situated in a small lot separated from the hog lot by a fence with a small gate. Old broken fence rails make excellent, cheap fuel; they ignite readily, give a quick, hot fire, and soon die down. When the cooking is done, rake the fire to one side, and bring the trough partially under the kettle on that side from which the fire has been removed. Raise the pole from that side out of the crotches, and let it down. This will tilt the kettle on the edge of the trough, and most of the food will be deposited in it; the balance is easily scooped out with a board or pan. When only one pole is used, it is difficult to get the cooked food into the trough. After the food has cooled sufficiently, open the gate in the fence, and let the hogs in to the feast. Managed in this way, the labor of cooking a kettle of food can be done in five minutes, and the only expense of making the ration is a few pieces of old rails.

A New Departure in Mule-Raising.

An industry that heretofore has not attracted the attention in the trans-Mississippi States its prospective profitableness would justify, but which of late has gradually been coming into favorable notice, is that of mule-raising. The ease with which mules can be reared, owing to their hardiness, is greatly in their favor. They can live, if not thrive, on the scant or coarse food that will maintain a mountain goat, while performing the year round an amount of drudgery really astonishing. These qualities are likely, in the future, to bring mules into a prominence which they have not heretofore enjoyed. Stockmen, noting the prices quoted from day to day in Kansas City, St. Louis, and other markets, for young mules, and the constant demand always greater than the supply, are arguing to themselves with much cogency that there is money in mules, and propose to have some of it. One basis of their calculation is, that the cost of raising a mule or a steer to the age of one or three years, is about the same; that at ruling prices a yearling steer is worth thirty dollars, and a three-year old steer sixty dollars, while, the yearling mule, if a reasonably good one, (of as good breeding as the grade steer), will command sixty to seventy-five dollars, and the three-year-old from one hundred to one hundred and thirty-five dollars. In other words, if the profits on rearing the steer are from fifteen to twenty-five per cent, the profits on the young mule, of but little greater cost, will be from thirty to forty-five per cent.

As the outgrowth of such thinking and calculation, a considerable number of farms are being stocked with the best class of low-priced mares obtainable, (mainly from Colorado and northern Texas), and these will be bred to superior jacks from Spain, Kentucky, Tennessee, and Missouri. On this account the trade in jacks is becoming greater than ever before known in the West, and some establishments are making a specialty of the importation, rearing and supply of jacks. The demand during the past year has been very active, and greater than the supply, at prices ranging from five hundred to one thousand dollars, and

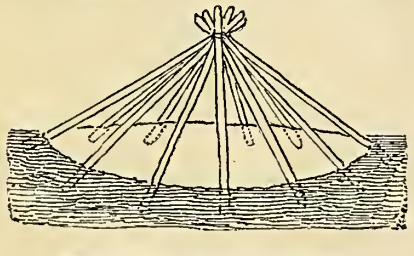


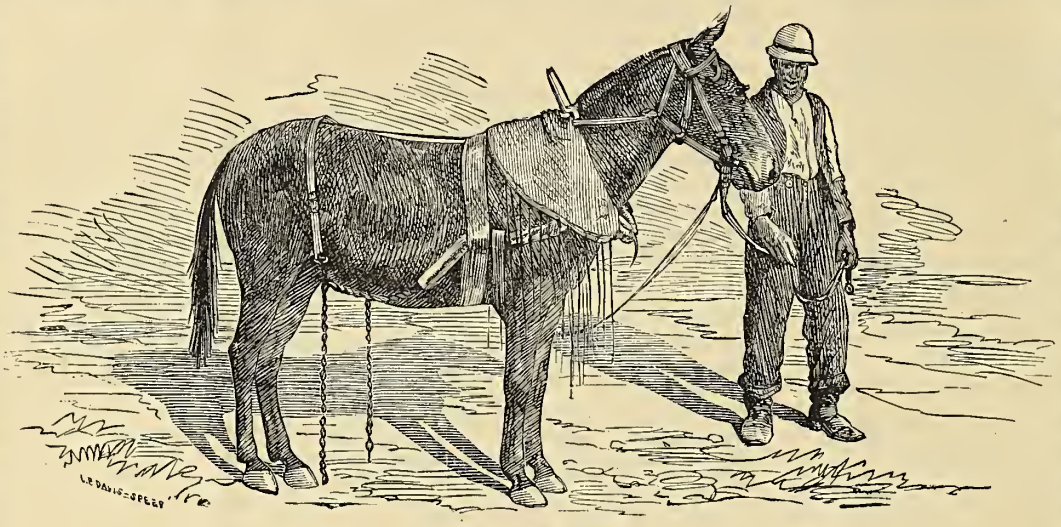
Fig. 1.—"WIGWAM" FOR PIGS.

even as high as fifteen hundred dollars each.

To start in the business of rearing mules requires relatively more capital than to begin rearing a like number of cattle, that is for the original stock; but for land, fixtures, feed, labor and taxes, the expenses will not essentially differ or will the per cent of increase; in fact, many think the probabilities in this respect are in favor of the mules, owing to their being less susceptible to diseases, and to the fact, as one writer states it, that "the mule comes to stay, and after he has once stood upon his feet and sucked, nothing short of a Gatling gun, a howitzer, or a stroke of lightning can upset him." The indications are that the better the mule is known the more will he be respected, and the higher the appreciation of his long-suffering patience and modest worth.

Why Capons?

Where there are many young cockerels which are to be sold, it will pay better to make capons of them, for the simple reason that capons not only attain a much larger size, but the flesh is far more desirable and palatable, while the price is greatly enhanced, frequently doubled. The demand for



A MULE IN HARNESS.

capons is much ahead of the supply, and likely to be so for a long while to come. A number of breeders of thoroughbred fowls, now make capons of all the cockerels which are not pure enough for breeding stock, and they would not continue to do so if it did not pay. It would take much space to describe the method of caponizing. Those who sell caponizing instruments, send full printed and illustrated directions for using them. One who is familiar with instruments, can soon learn how to use these successfully, and the percentage of loss will be but small. It is generally best to operate on a few dead birds, using those killed for the table. When the anatomy of the fowl is well understood, living specimens can be caponized with a reasonable assurance of success.

How to Prevent Milk-Fever.

One of the remarkable and frequently fatal ailments of cows is milk-fever. No closely related disease is known among other animals. It occurs at calving time, hence is called puerperal fever, which is really a human ailment. It is also called parturient fever, which means about the same thing, but is more correctly applied to animals as being a fever occurring at the time of bringing forth young. Milk-fever in cows is a parturient fever associated with apoplexy. It rarely or never—so far as we know—attacks heifers with their first calves, and rarely occurs before the third calving. It happens usually in summer, and rarely in cold or cool weather. It comes on before the flow of milk is established, and is supposed to result from the blood, which for months had flowed for the nourishment of the calf, not readily taking the course to the udder, where it would be indirectly elaborated into milk, but being thrown back, so to speak, upon the vital parts, causing general disturbance and high fever with a determination to the brain. It very rarely attacks cows which are simply great milkers. Its victims are rich milkers—butter yielders. Cures are rare when the attack is in summer. They are effected by the exhibition of active purgatives with stimulants, "salts" with ginger and ale, with bags of broken ice upon the head and applied along the course of the spine.

It is surprising that breeders of discretion, knowing the danger they run every time a great butter cow calves, should ever be willing to have them "come in" in hot weather. We believe that three simple practices will almost do away with the danger that milk-fever may take off our noblest cows. The milking of the cows up to calving—even though the milk be worthless for the last fortnight, except for pigs. (It is not necessary to milk clean out, or every day at the last, but simply to keep the udder constantly in a condition to make milk). Make sure that either by bran, roots, fresh grass, or other succulent food, or by medicine (oil or salts), the system is relaxed and cool. See to it that the cow calves in cool weather.

Perhaps there have been great butter cows, milked up to calving, which died of milk-fever, but we have yet to know of one. This long milking is no serious detriment to the cow. After danger is over she quickly recuperates, and with good food will soon yield as much as ever. The calf is the chief sufferer, as its nutriment is decreased. Still there is plenty of room in the world for it to grow, and no one need fear even that a little "runty" calf, if healthy, will not make a good sized cow, if it has suitable feed and proper care, if it do not, indeed, grow to be a large one, as is often the case.

Keep the Pigs Warm.

As has been shown in recent articles, warmth is essential to keep swine growing, or to have the food increase their weight during cold weather. "Anything is better than nothing," in this case surely. Mr. Jesse Cowen, Vernon Co., Wis., sends us a sketch and writes: "Having tried many plans for keeping hogs comfortable in cold weather, we have struck on no other one so cheap and effective as this. Set a lot of rails or poles in the ground, deep enough to hold them steady, with the upper ends brought together like a wigwam skeleton, figure 1. Then pitch on straw all around them a foot deep, and throw on soil enough to keep out the cold, leaving on the south, or sunny side, an opening, figure 2, large enough for the swine to go out and in, and for ventilation. Try it; it will save feed and put money in the owner's pocket from the day it is completed." March, and even April, are

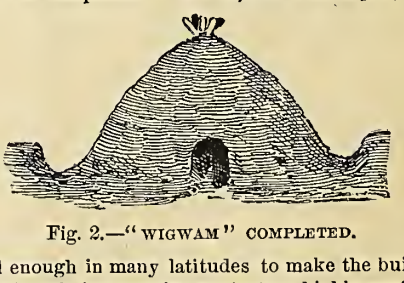


Fig. 2.—"WIGWAM" COMPLETED.

cold enough in many latitudes to make the building of such inexpensive protectors highly useful.

WHAT TO DO WITH THE CABBAGES.—If you can sell them so as to net one-fourth to one-half cent per pound on the farm, let them go. If not, feed them out to the cows, sheep, or pigs. Better bury them and keep them until spring; you may get a larger price, and at any rate the milch cows, or ewes and lambs will turn them to good account. A correspondent in Pennsylvania says he can get only a cent and a half a head. We cannot tell what they are worth to feed out, because we do not know the weight. They are worth at least five dollars to eight dollars per ton when properly fed.

Withes.

There is something untidy in the general appearance of withes. They are not ornamental certainly, but are often exceedingly convenient and useful as temporary expedients. In mending fence for

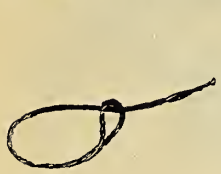


Fig. 1.



Fig. 2.

example, nails cannot be used, and a good withe well placed makes the fence firm and substantial. We have been in the habit of twisting the rod, of which the withe is made, so as to start the fibres of the wood nearly its whole length, and then using it like a band of straw, or anything else, drawing it as tight as possible with the hands. A newly arrived immigrant has shown us a better way. He makes a strong loop on the small end, as shown in figure 1, either with the twigs into which the rod is usually divided, or by twisting the rod upon itself. When placing the withe in place, he passes the butt-end through the loop, and pulls it tight, as a noose. If convenient, he places one foot against the loop and pulls with all his might. Then he holds it tight by bending it slightly, and, with both

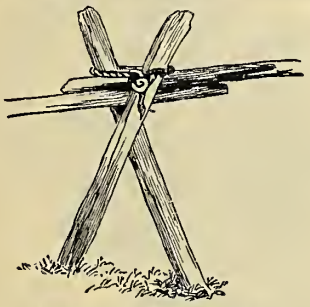


Fig. 3.—WITHE IN PLACE.

hands, giving a crank-like motion to the withe, (fig. 2), he twists it until it kinks, which it does close to the loop, and then he tucks the loose end under the body of the withe, as shown in figure 3.

How to Exterminate Wild Carrots.

The rains of the summer were uncommonly favorable for the growth of the wild carrot, and the meadows have been white with the "lace flowers," as ladies sometimes call this pest. A good farmer, having been very watchful for two years in extracting every plant of wild carrot from a hundred acres of meadow, finds the search this year nothing but a pleasant "walk over." Some folks are arranging for a severe two years' course of education in this particular. We doubt if two years will be effectual with meadows that have long been given over to this plant. The seeds are numerous and hardy, living in the soil for many years, and waiting a chance to sprout. The land cannot be cleaned in a year or two, unless it lie fallow, and by repeated harrowing five or six crops of the young plants are killed in a season. If there are only a few scattering plants, pulling up by the roots may answer the purpose. On some fields, when the carrots are about as plenty as the grass, pulling is out of the question. It would cost about as much as the land is worth. The plant is a biennial; the root dies after bearing seed, and mowing close to the ground is just as good as the pulling. If not cut close, it will sprout, and send up blossom shoots, and make seed three or four times in a season. The only effectual treatment, aside from the plowing and harrowing, is to prevent the seeding of the plant, by either pulling or mowing it as frequently as it may be found necessary. We took in hand about three acres of meadow in the spring of 1882, that received the wash of neglected fields on two sides, and that of the roads on the other two, the road-sides blooming with wild carrots. Each season portions of the mowing have been top-dressed with stable manure, etc., which has greatly stimulated the growth of clover and grass, as well as the weed. The first season the wild carrots were not very plenty, and were pulled. As the ground had been neglected for many years, there was a great increase of grass, as well as of carrots, the result of the manure. The carrots were cut twice in the following year, and none allowed to go to seed. The present season most of the grass has been cut twice, and all the carrots, and early in September there was a vigorous third crop of carrots in full bloom, ready for the scythe. The third cutting prevented the plants from seeding this season. Whoever undertakes to clean his meadows of wild carrots, must surely enforce the laws against their seeding.

Swine-Farming.

We are more and more impressed with the value of hogs on the farm. Many farmers make their cows the main feature; the buildings are constructed with reference to their management, and the rotation of crops is fixed to promote the same end. We also have farms devoted to horse-breeding, and whole sections of country where sheep-breeding is the leading industry. To make these different branches of husbandry a specialty, is the right course for success. In the great corn districts of the West, hogs are raised in large numbers, but we are forced to say, from observation, that it is generally corn, more than care, which gives the business its degree of success. Often enough corn is wasted if fed with care to fatten the entire stock. The western hog does not fill the entire place for which he was designed. He is simply a condensed corn-crib, with a great many rat holes. This business basis may possibly answer where corn is cheap and land requires no fertilizer, but in the largest portion of this country corn is not so abundant that the farmer can afford to waste it, or is land so rich but that it can become more productive. Hogs should be made a factor of improvement on every farm. We should have swine farms the same as dairy, horse, and sheep farms, with the fields and buildings adapted to them. Hogs should be fed in the fields, with a rotation in their feeding grounds, the same as in crops. In this way, in a few years, the whole farm can be gone over, and every field enriched. The farmer who keeps a few hogs shut up in a pen or confined in a small yard, or the one who confines his hogs year after year in the same field, do not live up to their privileges in swine-breeding; they rarely manifest the skill, or even the business shrewdness of the breeders of other stock. Any class of animals producing a great amount of food for the human family, should receive fair consideration. There is room here for solid missionary work, both in improving the condition of the pigs and of the people.

A Good Ration for Hens.

We have frequent warnings against the perils of feeding hens too much Indian corn, from people who affect poultry wisdom, and write for the agricultural papers. Where one hen suffers from excess of corn, we venture to say, ten suffer from too little. Too little feed is the besetting sin of the rural districts. We live there and happen to know; people grumble because they get only six or seven dozen eggs a year, change breeds often, make crosses, and thus their yards swarm with all sorts of barnyard mongrels, as a poor substitute for full rations. Nothing but feed in the hopper will make hens grind out the eggs. If corn was dangerous, or narrow quarters, for thirty light Brahma hens, we should have found it out this summer. Early in May, after the garden stuff began to come up, we shut up the hens in an old building about fifteen feet square, without floor, and with sides and roof of unscrupulous ventilation. It was a legacy of past generations, and had worn itself out as a carriage house many years ago. It is a standing witness that ventilation is good for fowls. The rations have been corn, given three times a day, kept in a box, generally about six quarts a day, a little more added when the box was found empty, broken clam shells kept in another box constantly on hand—a part of the skim-milk and butter-milk from one cow, a pail of water from the pump every morning, and a run of an hour before sunset upon the lawn, where there was an abundant supply of grass Two applications of kerosene, from the lamp filler, to the perches, have kept the fowls from lice, and the health of the flock has been remarkably good. The egg production has been abundant, and if there has been any danger in a constant supply of corn, the hens have not found it out. The eggs have been well fertilized, and the chickens strong and healthy. The theory of feeding has been that we get the most profit from fowls when we give them all they can eat, and a sufficient variety of animal and vegetable food. Milk has been the main supply of the former, and corn of the latter. We have come to the conclusion that there is a call for reform in poultry keeping. Too much liberty and low feed is bad for hens. T. B.

A Fixed Boom Derrick.

Where there is much handling of heavy barrels or sacks, as at a cider mill, one man, with some simple, mechanical contrivance, can easily do the

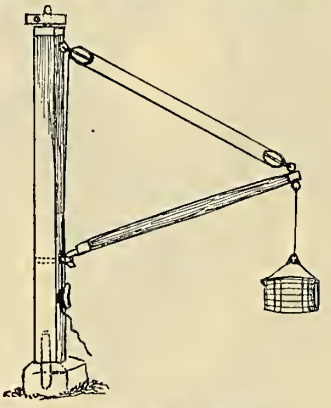


Fig. 1.—A BOOM DERRICK.

work of two or three, working by main strength. A boom derrick, figure 1, hung high, so that the weight shall be lifted from the ground ordinarily, when the derrick swings horizontally, is very convenient. A post is banded, and has a strong dowel at each end. The lower dowel is set in a stone fixed in the ground, close to the building where it is to be used, the upper one in a strong oak cleat bolted to the building. At the hight of about five or six feet from the ground, an eye-bolt passes through the post, and another is fixed at the top. The boom is fastened to the lower eye-bolt by a three-quarter inch hooked iron, attached as shown in figure 2, while the other end of the boom has a band with two eyes. This boom is a spar or pole, stiff enough to bear the strain without doubling up or breaking, and may be ten or fifteen feet long. The end of the boom is raised or lowered by

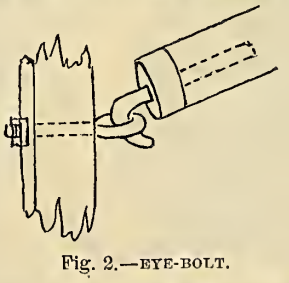
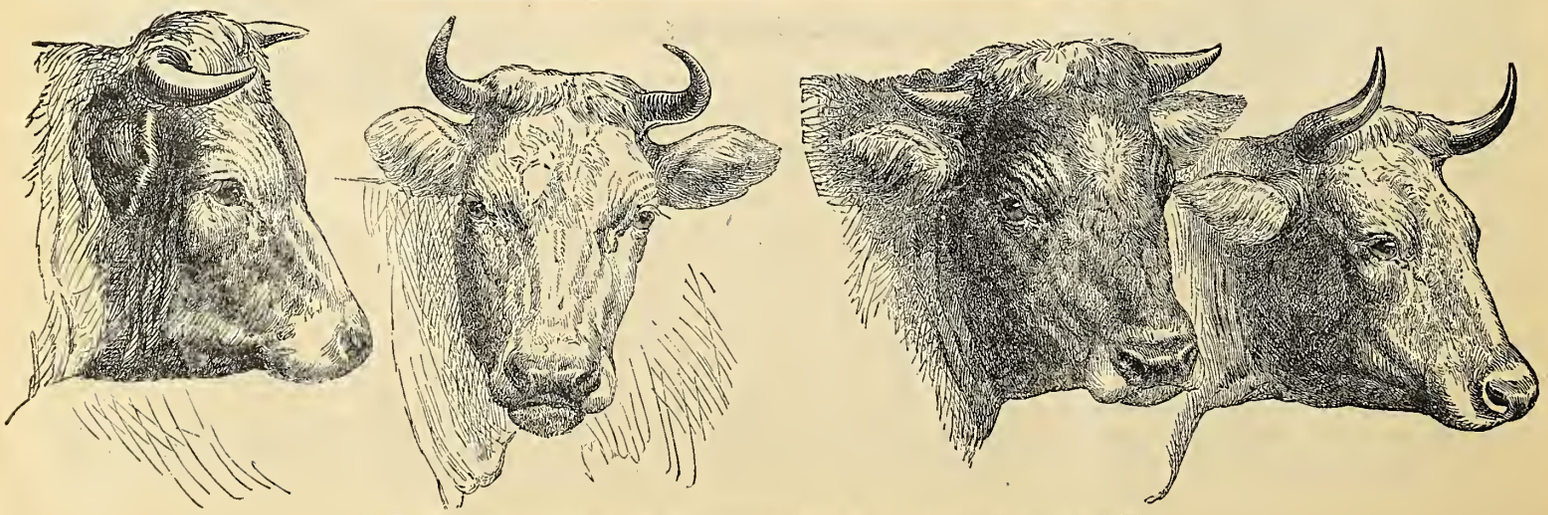


Fig. 2.—EYE-BOLT.

a pair of single pulleys, or by a double-block tackle, which will exert much greater power. When the weight is lifted, as out of a cellar way, it may be swung around over a wagon, and lowered into it.





TYPES OF ANIMAL EXCELLENCE.

Engraved and Re-engraved for the American Agriculturist.

Mutton and Milk.

Sheep raising is an essential part of the husbandry of Great Britain. There it is largely mutton raising, and it is really profitable on account of the vast quantities of mutton consumed by all grades of the population. The wool is of course an important item on the right side of the ledger, but the flesh is by far more so. Hence we observe the preponderance of mutton breeds. Observe the three hornless heads in the group on the opposite page. What a John Bullish look they have!—substantial, well-fed, and comfortable. The favorite Cotswold is in the lower left-hand corner. For some time he has held his place as the most popular of the long-wool breeds. The bare-polled Leicester pressed him close at one time, and even now has many ardent advocates, while the noble Lincoln, not shown here, has recently come strongly to the front. The fame of the long-wools, however, does not dim that of the middle-wools in this engraving, represented by the Southdown on the upper left of the group, and the delicate-faced Highland sheep on the upper right. The mutton of these middle-wools, which includes all the so-called Down breeds, the Cheviots, the dark-faced Highlanders, and the Mountain sheep of Wales, is of superior quality. In the centre of the group is the fine-wooled, heavy-horned Merino. Originating in Spain, this most valuable breed spread into France and Germany, in each of which countries it developed peculiarities under the different care received. There we have the French, Silesian, and Saxony Merinos, and in this country the so-called American or Vermont Merino, and the finer-wooled Silesians. In the lower right-hand corner we have a face strongly contrasting with the others, that of the African broad-tailed sheep, with its slender horns, lopping-ears, jaw-pendants, and the coarse, hairy wool. It has, however, wool of two qualities; the long-wool coarse and hairy, while the inner coat, close to the skin, is remarkably furry and fine, having wonderful felting qualities. It is chiefly from this that the best fez caps are made, which are so universally worn in Northern Africa and the Levant. The tail is esteemed as a delicacy.

Surely the sheep breeder has sufficient choice of varieties to suit his locality and market. Our American markets are every year becoming more and more discriminating. A few years ago the prevalence of fine-wool sheep, the flesh of which is not of high quality, gave our country people a distaste for mutton. Lamb they would eat if they could not get beef, but mutton in its perfection was not known. The introduction of the British mutton breeds is fast changing this, and our markets, particularly in large towns, show at all seasons excellent mutton, the best cuts of which sell for nearly or quite as much as beef. We get a good deal of over-fatted long-wool—Leicester and Cotswold—mutton from Canada, but our mutton-eaters are discriminating, and the better-fleshed mutton of the Downs, marbled with mingled fat and lean, which is chiefly raised nearer home, is decidedly preferred.

Sheep will probably never take their proper place in our agricultural system until our people generally learn to like mutton. This they will never do, so long as we fry chops, instead of broiling them, eat them "well done," instead of rare, and warm, instead of "piping hot." To one who knows what he wants, and has it right, there is no viand quite equal to a thick, juicy, fat, Southdown rib chop, broiled to a turn, and served hot from the broiler.

Root and sheep husbandry go together. Turnips will never have their profitable place in our farming system that they should have until we raise more sheep. Roots are good for cattle, but their advocacy is vain without sheep, and so is the attempt to raise mutton sheep profitably without roots.

Many of the noted breeders of beef cattle have for many generations exerted themselves to reduce the amount of horn and offal in cattle, while increasing the general weight of the body. With those who have bred for milk, the desirableness of small heads has not made so direct an appeal to the pocket. Our artist has illustrated this idea, by two pairs of heads shown on the opposite page. Shorthorns are upon the left, and Swiss cattle upon the right. The former has been primarily a beef breed, though it has great milk capacity if properly developed. The Swiss, on the contrary, has been bred for milk, and has a natural coarseness of head, which shows a neglect of this point, while attention has been given to promoting milk secretion.

New Invasions of the Fall Army Worm.

The winter wheat fields of the West have been devastated the past autumn by the caterpillar of the Fall Army Worm (*Laphrygma frugiperda*), sometimes called the "Southern Grass Worm." Many hundreds of acres have been completely devoured by the pest, a full-grown specimen of which is



THE FALL ARMY WORM.

shown in the engraving. This enemy to the farmer has been known since 1845, when it was injurious to the sugar cane crop in Georgia. The mature insect is a mouse-gray moth, with a wing expansion of a little more than one inch. The pale yellow, and slightly ribbed eggs, are deposited in clusters upon the leaves of the plants, which are to furnish food for the worms. The engraving gives the appearance of the voracious larvæ. There are three or more broods, the last one appearing in November, and being most destructive. The insect passes the winter in an inactive, or pupa, state in the earth. When these worms appear on the young growing wheat, the field should be rolled with a heavy roller, by which most of the larvæ will be crushed. The worms sometimes move in somewhat compact phalanxes, and their progress may be checked by plowing under a strip of the grain, in their pathway. Professor Forbes, State Entomologist of Illinois, who has had considerable experience with the Fall Army Worm during the past few months, recommends sprinkling the wheat with Paris Green or London Purple. An entire horde of worms, advancing across a field, may be destroyed by poisoning a strip in front of them.

Hay and Straw Hooks.

Many farmers who have hay and straw in stacks and use but little of it each day, prefer to pull out

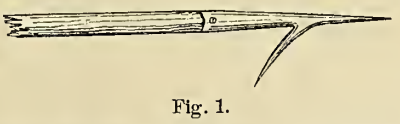


Fig. 1.

a sufficient quantity rather than to remove it by cutting down with a hay knife. Pulling out the hay when done wholly by grasping it with the hands, is a slow operation, whereas by using a hay

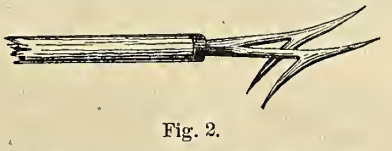


Fig. 2.

hook it is done quickly, and hay can be taken from a greater hight. The simplest form of hook is represented in figure 1, and consists of a piece of

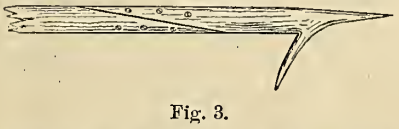


Fig. 3.

iron bent in the form shown, and attached to a pole eight or ten feet in length. The shank and other portions of an old garden hoe is easily converted into a hook by the blacksmith. A double hook is shown in figure 2. The hook portion, made of iron, should be a little heavier than the first one shown, as the double hook will grasp more hay and pull harder. Some use a wooden hook cut from a tree, but this is not satisfactory, as the heaviest part of the pole bears the hook. This objection is avoided by selecting a small tough wooden hook or branch, and attaching it firmly to a suitably shaped pole, as in figure 3. In using hooks of this description, push the point into the stack with the barb projecting downward and pull.

An Insect New to New York State.

Mr. R. J. Swan, of Central N.Y., reports an insect new to the State, and one that if not destroyed at once may prove very injurious to the wheat crop in future years. The insect is the Wheat-Straw Worm (*Isosoma tritici*), closely related to the Joint-worm (*I. hordei*) first observed in this country in 1829, and since known as a very destructive insect in the wheat fields. The Wheat-Straw Worm was first found in 1880, and last year was quite abundant in southern Illinois where it did considerable damage. The female perfect insect is shown in figure 1, much enlarged. It is only one-tenth of an inch long, with the body black, highly polished and



Fig. 1.—THE FEMALE STRAW-WORM.

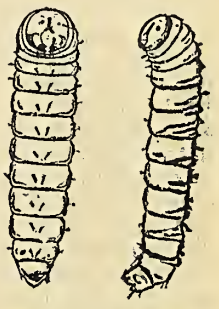


Fig. 2.—LARVÆ OF STRAW-WORM.

sparcely covered with hairs on the posterior end. Many of these females have their wings only partly developed, and some are wingless. The males have not been found. Two larvæ are shown much enlarged in figure 2; they are nearly twice the length of the female fly and pale yellow in color. In the pupa, or resting, state, the insect in its thin covering, is wasp-like in form and jet black in color.

The Wheat-Straw Worm is single brooded, the eggs being laid upon the growing wheat in April or May. The young worms, after hatching, enter the straw a few inches from the ground, and occupy the culms close to and usually above a joint. They feed upon the soft substance of the straw and sometimes become embedded in it. The hard knotty galls formed by the worms arrest the upward flow of sap, and cause the heads of wheat to ripen with light, imperfect grain. Straw thus infested does not break down like that attacked by the Joint-worm. This recent rival of the Hessian Fly and Wheat Midge may be controlled.

A part of the larvæ remain in the stubble until the following spring, and are quickly destroyed by burning. All the infested straw in mow or stack should be disposed of before midwinter, because some of the flies will emerge in late winter should the weather be favorable for them. An important precaution is the burning of all surplus straw in early spring. The absence of wings in many females renders them poor travellers, and is another resource against their rapid spreading through the country. Wheat crops should not succeed each other on the same land, and, if possible, do not let the field of one year adjoin that of the previous season. The Wheat-Straw Worm is now local in the East, and the means here given are sufficient for its extermination. A careless distribution of the infested straw throughout the neighborhood, or neglect to burn the stubble, may leave the way open for the spreading of the pest to the wheat in other localities until it becomes a national curse.

Walks and Talks on the Farm.

New Series.—No. 6.

Yesterday I had a visit from a young gentleman who is going to Nebraska to engage in raising pigs on a large scale. He has been there and thinks the business is not conducted on scientific principles, and yet it pays as well as any other branch of farming. If properly managed, he believes large profits can be realized. There need be no fears on that point. The only question is in regard to "proper management."

I have also been favored with another visit from a pig and pork-producer in this State—an intelligent, educated lady. She keeps pure-bred Berkshires, and gives them the best of care, and yet she said the profits were very small. She did not lose anything, but she made nothing. She kept the pigs solely for pork, and sold young pigs to her neighbors, but got no more for them than if they were not pure bred. She had no ambition to be a breeder. I told her that was a mistake. As long as she raised thoroughbred pigs, and raised good ones, she should sell the best of them for breeders, and dispose of the others as she is now doing. She should have two strings to her bow.

After she was gone, the Deacon and I talked the matter over.—"It is very evident," I said, "that pigs are attracting more attention than for some years past."—"I had rather raise potatoes," said the Deacon.—"You want to do both," said the Doctor. "Buy mill-feed for the pigs, and make a lot of rich manure, and use the manure to grow potatoes."—"It don't pay," said the Deacon, "and this lady has found it out, and the young gentleman who is going West will find it out too. I am sorry for him. It is you agricultural writers who induce these young men to leave the cities. They expect to hunt and fish, and live like gentlemen, and make a fortune in farming."

"The Deacon is getting worse and worse," said the Doctor, "he needs a blue pill and a dose of quinine. What harm do these young men do? The cities get young men from the farm; why should not the farm get young men from the cities?"—"Oh, well," said the Deacon, with a smile, "I suppose I am an old fogy. Let the young men come if they want to and welcome, all I say is that farming is a poor business, and they will soon find it out and be back in the cities. Wheat at eighty cents a bushel, here in the State of New York, means hard times for farmers everywhere."—"But this young man," said the Doctor, "is not going West to raise wheat, he is going to raise hogs, and I believe he will make it pay. But even if he does not, money is not the only thing in the world worth living for, and a few years on the western prairies will make a man of him."

"Have it your own way," said the Deacon, "but I tell you farming is a poor business. There are no prizes and lots of blanks. This young man will put his money in hogs, and cattle, and sheep. After he has got fairly going, the grasshoppers or drouth, or frost, will ruin his crops; cholera will kill half his hogs, and leave the other half weak and worthless; his sheep will perish in the winter, and have foot-rot and scab in summer. Lung disease may break out in his herd of fancy cows."—"Yes," said the Doctor, interrupting, "or a cyclone may strike him, or his horses be stolen, and his house burn up and he be obliged to live in a dug-out, but if he keeps up his courage he is less to be pitied than the man who, surrounded with comforts, worries himself over imaginary evils. I have great faith in these young men who go West. They will meet with no greater difficulties than the men who came here when this country was a wilderness."—"I hope not," said the Deacon, "if they have half the trials we endured, they will wish themselves back at home again."

"We are forgetting the pigs," I said, "and I have never known a time when they were more worthy of attention. Many young people are interested in their improvement. I get more letters asking questions about hogs than about any other subject. Here is one from a farmer at Lincoln, Nebraska. He says the Poland-China hogs are all the rage, but he thinks they do not mature early enough, and he wants to know what breed he can keep that will give him pigs weighing two hundred and eighty pounds at eight months old. Now the truth of this matter is that any of our breeds will do this—Poland-Chinas, Berkshires, Cheshires, Chester Whites, Jersey Reds, Yorkshires, Suffolks or Essex. The modern Suffolks and Yorkshires are a comparatively small white breed that fatten easily and mature early. The Essex are a black breed, with similar characteristics. The other breeds mentioned are larger. If I should say that they do not fatten as easily or mature as early as the smaller breeds, the matter would be disputed. I have always said that where hogs are kept with no reference to selling any of them for breeders at high prices, in other words, where hogs are kept solely to make pork, I can see no advantage in keeping pure-bred stock, and the same is true of cattle and sheep. Where beef only is the object, it does not pay to keep pure-bred Shortborns or Herefords. It is like using mahogany for fuel. The breeders may dispute the assertion, but I am confident that it does not pay to keep high-bred American Merinoes merely for their wool and mutton. Their value consists in their power of impressing their characteristics on their offspring, and in improving ordinary flocks. For this purpose they are of great value. But it is absurd to suppose that a sheep which gives you a fleece weighing thirty pounds—six pounds of which is wool, and twenty-four pounds yolk, is in himself, as a mere wool-producer, a profitable animal. That twenty-four pounds of yolk can be produced only by the highest feeding, and it is worth nothing when you get it. But such a ram can be used on flocks of ewes that have dry, light fleeces, with great advantage. A single cross may double the annual weight of wool, and still more the weight of fleece.

I am well aware that this kind of reasoning applies with less force to hogs than to cattle and sheep, because they are so much more prolific. It takes but a short time to get a herd of pure-bred pigs, and if the pure breds are as hardy, as easily raised, as prolific, as good mothers, and as easily fattened as good grade pigs, then the slightly higher prices asked for the pure breds at the start, is no particular objection. I believe, however, that as pigs are ordinarily fed and managed, pork can be produced with less care and labor from good grades than from pure breds. And I so advised my young friend who is going to start a herd in Nebraska. Let him buy the best common sows he can find and breed them to a pure-bred boar. If he selects his boar with good judgment, he can raise "extra Philadelphias" from the start, and such pigs command the highest prices in the Chicago market."

"But," said the Doctor, "why cannot he produce such pigs from some established herd?"—"Perhaps he can; though I do not happen to know the breed. The pure breds will either be too big or too small. The small breeds fatten so easily that they are deficient in vigor, and lack appetite and digestion. Select a sow from the large breeds, and cross her with a small-breed boar, and you get the desirable qualities of both. Such at any rate is my opinion."

A gentleman in Maryland sent the *American Agriculturist* thirty-two new subscribers for 1885, "and now," said he, "I want you to do me a favor. Ask Mr. Harris to give us something new, and not merely his old talks of '65 and '66, and tell him not to praise his own methods too much." When I showed the letter to the Deacon, a smile of amusement and satisfaction passed over his face, but he said not a word. He kept smiling and smiling; then put on his glasses, and read the letter again, names of subscribers and all. I looked at him, but he said nothing, merely smiled. I could get no comfort out of the Deacon.

It would not be true to say that this letter pleased me. I have thought of it a good deal. It is a genuine letter. It is not made up by some of my brother editors to take the starch out of me. It is no joke. It comes from a good friend of the paper. It doubtless represents his honest views and wishes, and deserves respectful consideration.

One thing I can say, and that is, I am not republishing my old talks. Every line I write for the *American Agriculturist* is written out new. I never copy my old articles—never preach old sermons. The truth of the matter is this: These "Walks and Talks on the Farm" are just what they purpose to be. I live on the farm, carry it on myself, walk about it and talk about it. I wrote my first article for the papers on this farm in 1850. I live a quiet, and what some people would call an isolated life. If there is nothing new in these "Walks and Talks," it is because there is nothing new on the farm. I talk about what actually happens, what we are doing, and what we propose to do. Such talks are necessarily egotistical. The Deacon does not praise my doings. If they are to be praised at all, I have to do it myself! I am getting old, and I am asked to give something new. It has set me to thinking. And the conclusion I have come to is that my Maryland friend is right, I have fallen into a rut, and it is time I got out of it, and so to-morrow, Oct. 15, I propose to start on a trip West, and see other farms besides my own and the Deacon's.

"There are plenty of interesting things for us to talk about on your own farm," said the Doctor, "if you only knew it. Your plan of growing celery is new. Your method of keeping onions in malt sprouts is new. Your suggestion to raise beet-sets as we now raise onion sets is new. Your proposition to induce the Lima bean to assume a dwarf habit is new. Your extensive use of nitrate of soda on garden crops is new to me. Your method of driving a wagon and hay-rack under the trees, and gathering all the apples you can reach from the wagon, I have not seen practised elsewhere."—"Nor you never will," said the Deacon, "the horses tread on the windfalls."—"But we go over the orchard and pick them up before we commence," said Charley, "and by having two or three boys on the wagon, with a careful man to 'boss the job,' three-fourths of the apples can be picked without using a ladder. The boys get up into the tree, and stand on the limbs, and hand their baskets to the man on the wagon."

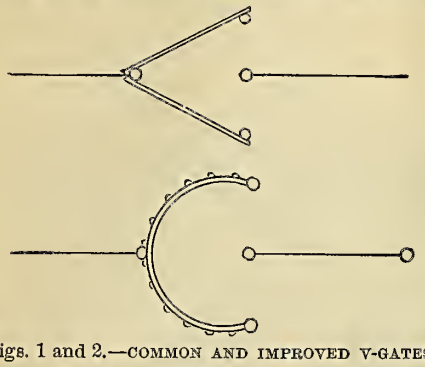
"Good for you, Charley," said I, "the plan is a good one if properly managed; but the Doctor cannot flatter me out of my resolution to take a trip West, and you shall go with me, and take your dog and gun, and perhaps we can find something to shoot."—"But," said he, "you have no gun."—"I will see what can be done," and telegraphed Mr. Judd, "I am going West to-morrow. Can you send me a breech-loading gun No. 10 bore, weighing about nine pounds?"—In an hour the answer came back from New York, "Gun shipped. Don't shoot yourself. Write us daily."—"That's business," said Charley.—"Yes," said I, "and there is now nothing to stop us. We will have a good time."

"We shall be through digging potatoes to-morrow," said Willie, "and the corn is all husked."—"Whatever you do," said I, "be careful in storing sweet corn so that it will not mould in the crib, and draw in the stalks the moment they are dry. There is nothing to be gained by delay. Gather the apples. Make only one grade this season. It will not pay this year to put second quality apples into barrels. Draw them to the dry-house. When you cannot work at the apples, harvest the beets and mangolds. Pit them in the field on the highest and driest knolls. Plow out the pits, and do not be afraid to plow too wide a strip, and plow it three or four times over, until you have a great, wide dead-furrow, and, what is more important, until the land on each side is a mass of loose, mellow earth, a foot or eighteen inches deep."—"I know," said Willie, "and you want us to mix plenty of soil among the roots in the pit."—"Yes," said I, "and do not make too wide a pit—three to four feet is wide enough, and build up the roots until you have a slanting roof, that will shed water, and then cover with straw and do not spare it."—"We will do it right," said Willie, and he will. He knows the importance of these little details, even

if they are not new. "I suppose," he said, "you will be back before we dig the celery and cabbage." —"Possibly not," I said, "at any rate, as soon as you have finished the mangolds, and beets, and carrots, and barreled all the apples, get everything in from the fields—the turnips of course last."

Hog Cholera and Corn.

We often hear it asserted that hog cholera, so-called, is due directly or remotely to the too exclusive use of Indian corn. There may be some truth in it, but there is no proof. Indian corn is one of the best foods for fattening hogs. It is particularly rich in starch and oil, and of course, this means a comparatively low proportion of nitrogenous or flesh-forming ingredients. Wheat, barley, and oats, contain more nitrogen and mineral matter. Peas are still richer in nitrogen.



Figs. 1 and 2.—COMMON AND IMPROVED V-GATES.

The nitrogen and mineral matter of wheat exists largely in the bran, or in the part of the grain immediately under the bran. If corn is deficient in nitrogen and mineral matter, the evil, it would seem, could be corrected by feeding bran and fine middlings in connection with the corn. The practical difficulty is to get the pigs to eat the bran. They prefer the corn. The low price of wheat gives us a good chance to see if pigs will be healthier with less corn. We do not say that wheat is worth more than corn to fatten hogs, but it is quite probable that for young growing pigs, wheat is the healthier and better food, and if wheat is worth no more than corn, wheat is probably the cheaper food, especially for young animals. We believe in corn. It is the grand American cereal. We can raise it at less cost per bushel than wheat, but when wheat cannot be sold for more than corn, we can feed it to our animals with good advantage.

Manures for Potatoes.

Whether it will or will not pay to use nitrate of soda or salts of ammonia on potatoes, in connection with other fertilizers, depends on the price we get for the crop. In ordinary seasons, if the crop sells on the farm in the autumn for fifty cents per bushel, we could use artificial manures containing nitrogen, with considerable profit. As a rule, however, our large potato-growers will look to the soil and home-made manure for nitrogen. They will use what barnyard manure they can spare, and turn under grass or clover sod. They will plant on well-drained alluvial land that is rich in organic matter. In such circumstances many of our readers will be thankful for any information as to how they can profitably increase the yield of the crop. Many have obtained good results in the use of plaster, hen manure, and ashes, and we have found plaster alone sometimes remarkably beneficial. The experiments of Lawes & Gilbert, alluded to in "Walks and Talks on the Farm" last month, would seem to indicate that we could use all our ordinary artificial fertilizers with advantage on the potato field. The "superphosphate" used in these experiments contains no potash or nitrogen. On the other hand, the ordinary superphosphate sold by the manufacturers of artificial fertilizers, contains phosphates, potash, and nitrogen. There are some superphosphates sold that contain nothing except phosphates. These are usually made from Carolina rock phosphate, and are just as valuable in proportion to the soluble phosphate they contain, as the superphosphate used by Lawes & Gilbert.

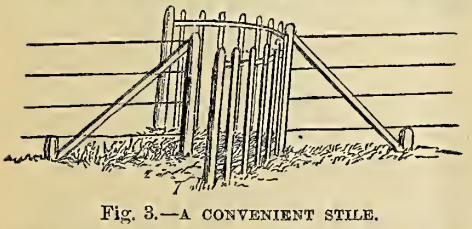


Fig. 3.—A CONVENIENT STILE.

From these experiments we may safely conclude that superphosphate alone can often be used on potatoes with great profit. This would be particularly the case when the soil contains organic matter capable of affording nitrogen to the crop.

A large crop of potatoes cannot be produced unless the soil has a full supply of nitrogen, phosphates, and potash, in an available condition. Available nitrogen, however, is a costly article, and it is good policy to use up all that the soil annually affords. This we can do by seeing that the growth of the plants is never checked for want of a supply of phosphates and potash. We are now getting in this country superphosphates at reasonable prices, and farmers can use them with profit on such crops as usually command good prices.

Stiles and Gates.

The use of wire fences, which now-a-days is becoming so general, makes it desirable to have stiles or gates at points where, with the old post and rail fence, it was not necessary. The experience of some of our friends is in point: Figure 1 is a common form of gate, which they found in use. It consists of a V-shaped panel, filling the opening

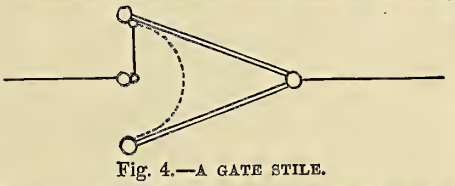


Fig. 4.—A GATE STILE.

in the fence—the open ends of the V being fixed to posts equally distant from, and in a line with one of the posts in the fence, and at right angles to it. This was improved by using bent wheel-rims (fig. 2), instead of the straight pieces forming the V-shaped panel. Kept well-painted, the hickory rims will bear the exposure to the weather perfectly. The palings should be of oak, an inch wide, and half an inch thick, fastened on with screws. The opening in these stiles must be sufficient to allow a corpulent person to pass easily, even if a frisky bull is in uncomfortable proximity, and for this figure 3 is really the most convenient form. The objection to both of these stiles is, that there is no actual closing of the passage. Calves, sheep and pigs, not to mention dogs, work their way through. To prevent this, the gate-stile, figure 4, was invented. It has a small gate swinging on the middle post, but stopped in its movement by the end posts of the V. A person can pass by stepping well into the V, and moving the gate by him, where he has free exit. This form is efficient, but inconvenient. A fourth form, the best of all, is the swinging A-stile, figures 5 and 6. In this there are two light gates, made upon the same hinge post, spreading like the letter A, and braced with a cross-piece between the rails of each side, like the center part of the A. This gate is set to swing on each side of the center post, as shown. It is so much narrower than the V-stiles, that it is almost impossible for small animals to pass, but it is easily hung so that it will always remain closed, and so offer no temptation to animals on the outside. At night, or when not in use, a wire ring, or withe-hoop thrown over the top of the post, and the upright part of the gate frame, will securely fasten it. To make the gate swing shut, all that is necessary is to set the eye of the lower hinge of the gate well out towards the outside. In figure 6, we give a neat A-gate, made of pine or any strong and light wood.

Finished Products.

"Buy the best," is sound advice. Any shrewd purchaser learns to follow it at an early date, and buys of whoever has the best goods. It pays as well on the farm as elsewhere. Twenty-five cents is a common price for butter in the older States. In the dairy regions most farmers are content to sell at the medium price, at the country store, and take their pay in goods, and settle once a year. They do not have modern improvements or use ice, and are not scrupulously clean, from the milking to the packing of the balls for market. They fall short

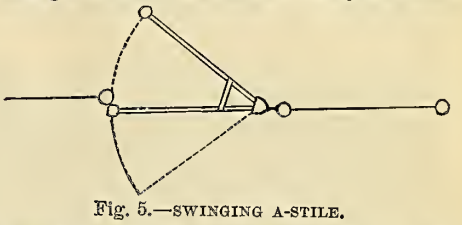


Fig. 5.—SWINGING A-STILE.

in several respects of "gilt-edged butter." But my neighbor A. believes in finished products. He uses ice, every vessel is kept thoroughly scoured and sweet, his cream is well ripened, churned twice a week, the butter is thoroughly worked, salted by rule, packed in neat balls, and sent to market in a cold atmosphere. He does not sell at the store at the merchant's price, but supplies families at thirty-two cents a pound, and to families in the neighboring city at thirty-five cents. Every one that uses his butter is satisfied with this finished product, and continues to purchase as long as he can secure it. Mr. A. finds that Jerseys and their grades, are the best butter cows, and has weeded all others out of his herd. He milks them for ten and a half months, and has no occasion to trade off dry cows. By regulating the time of calving, he keeps the churn going the year round. Mr. B. is another neighbor, who keeps a dozen cows of high Jersey grade, makes a gilt-edged butter the year round, and sells in the city for thirty-five cents in summer, and forty cents in winter. With suitable buildings and fodder, it is no more difficult to make the best butter in winter than in summer, and the economy is not simply in the higher price. There is profit in the extra months in which his cows are giving milk. Mr. B. also keeps his cows in a warm barn, and saves largely in fodder. He gives full rations, and does not spare the meal. More manure is made, and it is of better quality. As the stock is of better quality, the heifer calves do not go to the butcher, but are raised, and, after his own herd is kept good, he finds a ready market among other farmers who want to improve their herds. As a rule, the farmer who puts the best things of their kind upon the market, finds no difficulty in selling all he can raise at a good profit.

DO APPLES HURT MILCH COWS?—We answer, no, unless they are over-fed. It will not do to give a cow free access to a pile of apples, it might

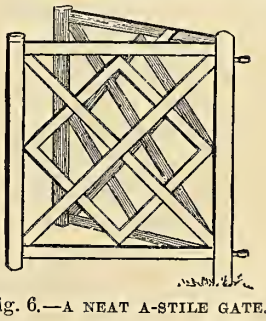


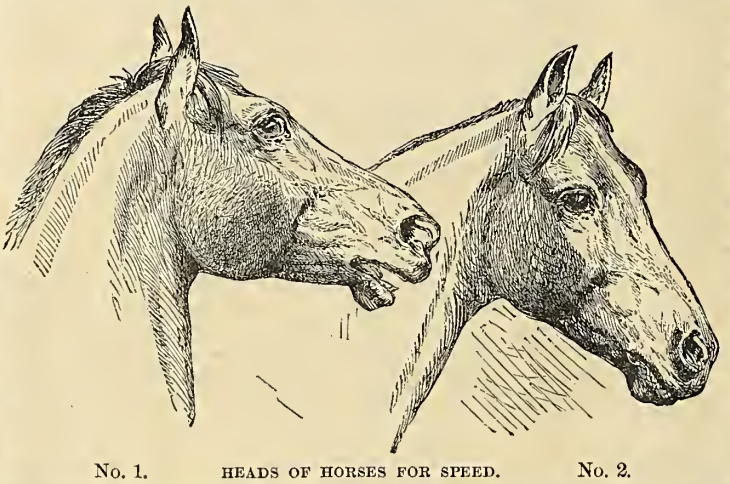
Fig. 6.—A NEAT A-STILE GATE.

not only dry up the flow of milk, but kill the cow. A peck of apples twice a day will do much more good than harm, and the sooner farmers get over this idea that apples injure milch cows the better for the cows. Apples are plentiful this year in most sections, and if fair fruit would go to waste because your conscientious scruples forbid your making it into cider, give it in reasonable quantities to your milch cows and other stock.

Teasels and their Culture.

The Teasel is one of those special crops, that in Europe is confined to certain localities, both in England and on the Continent. For some reasou we have lately had inquiries as to the crop, and the manner of cultivating it. Teasels have been more or less cultivated in the older States; but the main supply is imported. A wet season is, in Europe, disastrous to the crop. Our climate is, on account of its dryness, adapted 'to teasel-growing. As the harvesting is by hand, and extends through about six weeks, the cost of gathering the crop is the chief obstacle to its culture in this country. To those who wish to experiment in growing teasels, we give an outline of the method of culture. The Wild Teasel (*Dipsacus sylvestris*), is found as an introduced road-side weed in the older Northern and Middle States, and it is supposed that the cultivated or Fuller's Teasel (*D. Fullonum*) is a variety derived from that. This Teasel is a strong, biennial, branching plant, some six feet high, with prickly stems and leaves. The main stem and the branches are terminated by a crowded oval flower cluster, which is about two-and-a-half inches long, and an inch-and-a-half in diameter. The small lilac-colored flowers are densely crowded on this head, and each flower is subtended by a stout bract or chaff, which is hooked at the end. When the flowers fall, the heads are a collection of these hooked bracts, and when dried, form the teasels of commerce. They are used in forming the nap upon woolen cloth, and though many attempts have been made in that direction, no substitute has been found for the teasel. The heads, or teasels, are fixed in a frame, or upon a cylinder, which slowly passes over the cloth; the hooks pull out the fibres, all in one direction, and thus "raise a nap." If any obstacle is met with, the hook will break, without injury to the cloth. Teasels need a strong clay soil, one that is not very rich. The seeds are sown in drills, twenty inches apart; when the plants are up, they are thinned to ten inches in the rows, some growers transplanting the surplus plants to other rows prepared for them. The crop is kept clean during the first season, and it is well, when winter sets in, to cover the soil between the plants with straw. The next season the flower stalk is thrown up, which branches and bears flower heads. Earth is drawn against the plants, to assist them in resisting the wind. When the blossoms drop from the heads, these are cut singly, leaving each with a stem eight or nine inches long. Each plant yields from forty to fifty teasels. The heads are spread under cover, and when dry, are assorted into three grades, the largest being known as "kings." As it takes from two to three thousand teasels to dress a piece of cloth, and these are used up in the process, it will be seen that the consumption of teasels by woolen manufacturers is very large. The crop is a very exhaustive one to the soil. A sufficient number of heads are left to ripen upon the plant, to supply seeds, which are thrashed out with a flail. Any surplus of seeds is fed to poultry, which are very fond of them. In England, the crop is regarded as an uncertain and a speculative one, as the frequent rains of that country often prevent it from properly maturing.

A NEW SEEDLING PEAR. — Mr. E. H. Bogart, Queens County, N. Y., several years ago sowed seeds of the Seckel Pear. The result was a large number of seedling pear trees, some of which are showing fruit. Last year he brought us several of the new pears, and as others came into bearing this season, he submitted specimens for our inspection. None among the seedlings we have seen, bears the slightest resemblance to the parent Seckel. One has such an exact resemblance in shape and every other respect to the Boussock, that we at first supposed some mistake had been made, and that we had that variety instead of a seedling. A trial proved that however closely the exterior might resemble the Boussock, the flesh was entirely different, being very spirited, with a high vinous flavor, and more acidity. The flesh is fine-grained and melting, and the fruit quite good enough to bear the name of its enterprising originator—the Bogart. There is still room for improvement in pears.

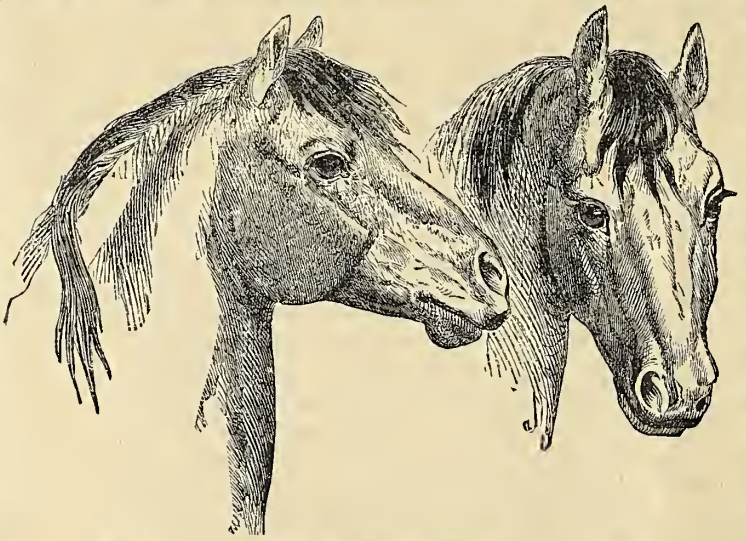


No. 1. HEADS OF HORSES FOR SPEED. No. 2.

Horse Physiognomy.

A horse's head indicates his character very much as a man's does. Vice is shown in the eye and mouth; intelligence in the eye and in the breadth between the ears, and between the eyes; spirit in the eye and in the pose, in the mobile nostril, and active ear. The size of the eye, the thinness of the skin, making the face bony, the large, open, thin-edged nostril, the fine ear, and the thin, fine mane and fore-top, are indications of high breeding, and accompany a high-strung nervous organization, which with good limbs and muscular power, ensures a considerable degree of speed in the animal.

We herewith present engravings of two pairs of horses' heads. The first are horses of high breeding. Number 1, is high-strung and mettlesome, with an untrustworthy eye, and a vicious mouth—a powerful animal of great endurance, but being wilfull, is hard to control. Number 2, is equally high-bred, with great breadth of forehead and head, with a large, full, generous eye, not lacking in spirit. The bony face indicates blood, the ear and the thin-edged nostril show spirit, while the whole expression of the animal's face is one of abounding docility, kindliness, and honesty.



No. 3. HEADS OF DRAFT HORSES. No. 4.

In the second pair of heads, we have those of cold-blooded draft horses, not needed for speed, but for the steady exercise of muscular strength. The heads are meaty, the nostrils fleshy, the eyes of medium size. The skin is thicker than in fine-bred and thoroughbred horses, while the ears, though often small and neatly-formed, are fleshy and less delicate, and the mane more abundant. Traits of moral character are, however, similarly indicated. Intelligence is apt to degenerate into shrewd self-indulgence and laziness, with wit to let his mate do the most work. Spirit is shown by the mobile ear and open eye, and vice by the uncertain, restless eye, the ear laid back, and the air of distrust in strong contrast to the trustful honesty of the horse's true nature. Number 3, shows a draft horse of willingness and spirit, free from vice by nature, but of spirit and intelligence enough to have vicious traits developed by bad treatment. Number 4, on the contrary, is a knowing horse, having a wise caution, laziness without stupidity, good-natured; one that will bear the whip and need it before he will do his best. The stupidly, lazy horse, that drivers call a "lunk-head," has a dull eye usually, a narrow forehead, and contracted poll. He is not represented in this group, but occurs not infrequently, is always a blunderer, forgets himself, and stumbles on smooth ground, gets himself and his owner into difficulties, calks himself, is sometimes positively lazy, but often a hard goer. He needs constant care and watchfulness on the driver's part. A buyer of equine flesh should be able to detect the good and bad qualities of the animals he contemplates purchasing. This valuable knowledge is only acquired by a careful study of the various parts of horse physiognomy.

The Exportation of Apples.

In view of the short crop of apples throughout the United Kingdom, the English journals are discussing the sources whence the needed supply of fruit is to be drawn. All the countries of Continental Europe report a short crop of apples, save France, and here the late and better kinds are not abundant. "It will be from America that the supply for the United Kingdom will be derived," is the general conclusion. It is admitted by dealers in England, that the prospects of shippers to that country, "were never more promising, particularly for the better and later descriptions of apples." It is to be hoped that our shippers will not repeat the mistake of a few years ago, when in a season of scarcity in England, all qualities of fruit—any that were apples, were sent abroad. As a consequence, many shipments did not bring enough to pay the freight. The English buyers will pay liberally for good fruit; poor stuff they will not have at any price. It is to be regretted that much discredit has been brought upon American apples, by sending over barrels that had been topped; the selected fruit placed near the heads, while the hulk of the barrels was filled with fruit of poor quality. The practice of placing one or more layers of the best specimens of fruit upon the top and bottom of each barrel, may be desired by some of our own dealers, but it does not meet with favor abroad. An American brand no longer guarantees honest packing, and buyers insist that the contents of each barrel shall be emptied into an immense tray, in order that the entire contents may be inspected before a purchase is made. With confidence in the honesty of our packers restored, we shall enjoy a quick market for our orchard products in London and elsewhere abroad.

Renting Land on Shares.

As a rule, farmers do not like to rent land in high condition on shares, and the man who works land on shares almost always pays too high a rent for it. We have rarely seen a farm that had been rented on shares for several years that was not badly "run down." It would seem, therefore, that there is something radically wrong in the system.

The only farming that pays is good farming. We mean by good farming, draining when necessary, thorough cultivation, the destruction of weeds, saving and applying manure or plowing under green crops, and doing the work in good season and in a workmanlike manner. The man who hires land on shares pays for it in labor. The more labor he puts into the land the higher rent he pays—the less labor the less rent. This is true, at least, so far as the tenant is concerned. He may put considerable labor into the land without the owner getting any benefit from it, owing to poor land or poor judgment, or the failure of the crops from floods, drouth, insects, etc. But if the tenant puts on the labor, he pays the money which the labor represents, whether the owner gets it or not. In other words, the tenant assumes the risk of poor seasons, just as much as if he paid money rent. He quickly finds this out, and sooner or later learns that the less labor he puts on the less risk he runs.

In spite of all this, we know many who have done well in renting farms on shares. They have now good farms of their own, all paid for. In fact they have bought the farms they formerly rented. Of course the owners of the farms were lucky in finding such men. If the tenants made money, the owners made money also. A great deal depends on the men. The owner must be liberal. If he can find a tenant that is industrious, careful, systematic, prompt, and forehanded, he can well afford to help him in every way in his power. In helping the tenant he is, of course, helping himself.

In regard to what crops to put in on a rented farm, it is evident that, other things being equal, the more labor a crop requires and receives for its proper cultivation, the more rent you pay.

An apple orchard in bearing condition is profitable to the tenant. Unless he has a good crop to gather and market, he need spend but little labor on it. A meadow or pasture requires but little labor.

A crop of oats or barley, or spring wheat, costs but little to put in or harvest. Crops which need hoeing and cultivating, cost more than wheat, barley, oats, buckwheat, millet, timothy, clover, etc. We have known a farmer to let land to one man to sow to oats in the spring, followed with winter wheat in the fall, and to another man land to plant to potatoes—both on the halves, the tenant to do all the work. If the oats yielded forty bushels per acre, and sold for thirty cents, the land owner got six dollars an acre rent. If the potatoes yielded one hundred and fifty bushels per acre and sold for forty cents per bushel, the landlord got thirty dollars an acre rent. You will say that the tenant also received thirty dollars per acre. True, but he spends more labor on the potatoes than on the oats.

The so-called garden crops, such as cabbages, onions, carrots, beets, rutabagas, turnips, celery, etc., all require considerable labor, and when raised on shares the land-owner, if a fair yield is obtained, gets a high rent for his land. He can afford to furnish all the manure and all the seed, and in fact should do so, and be liberal in lending the use of plows, cultivators, drills, etc. If good crops are obtained, both parties will do well.

Broad-leaved Evergreens, Holly, etc.—The few broad-leaved evergreen shrubs, native to the Northern States—the holly, the laurels, inkberry, etc., are so desirable for cultivation, that they are often transplanted from their native localities to the grounds. When thus transplanted, these fail so generally, that some have the impression that only plants grown in the nursery will succeed. Others, thinking that an uncongenial soil is the cause of failure, are at great trouble to procure leaf-mould, and endeavor to imitate their natural conditions, but all without favorable results. Notwithstanding the many failures, these shrubs are as easily managed as any others. Spring is the best time for moving them. Before taking them up, cut off every branch, leaving nothing but a stem.

Public Parks—The Crotona.

Among the new parks proposed for New York City is a tract not far from the Bronx River, in Westchester County, which is frequently visited by one of our editors in his daily drives around New York in quest of interesting things for his readers. Our artists herewith present a spirited engraving from designs furnished us by the Park Commissioners of this intended woody locality, which is to be named Crotona Park. Each of the established, as well as the proposed parks around New York, has its distinguishing features. In Central Park, for example, the prevailing natural features are massive rocks, while the conspicuous artificial embellishments are bridges, of which there are many fine examples. Crotona Park, as may be seen by the engraving, will be more like the English parks, in being heavily wooded. A large portion of the tract only needs to have roadways cut through it, and a judicious thinning out of the trees for the benefit of those that remain, to adapt it to park uses at once. This brings to mind a fine private park we visited in a Western State. A farmer who had a large maple orchard, or "Sugar Bush," as he called it, had cut away all the undergrowth, laid out roads and converted his tract into as fine a park as one need have, while it was all the more convenient for its original use—a source of sweetning. This affords a suggestion to many other farmers who are so fortunate as to possess maple groves. Let them be made into parks.



A WOODED PARK.

Engraved for the American Agriculturist.

A Cottage Costing $1,500.

S. B. REED.

This is a very desirable cottage of eight rooms, with the necessary halls and closets. It is well suited to the requirements of a small family. Several houses have been built from these plans. In some cases, where persons desired to occupy only a single lot, the kitchen has been placed in the rear, instead of at the side, as shown. The cost is the same in either case. The construction is shown in the following abstract of the specification:

The hight of the cellar is six feet six inches; of the first story, nine feet; and of the second story, eight feet; all in the clear. The cellar is excavated to the depth of three feet, and the loose earth used to grade around the house, at completion, leaving two and a half feet of the foundations exposed to sight on the outside. The foundation for the main house is of broken stone, laid in good mortar, eighteen inches thick, to the hight of three feet six inches; the balance is of hard brick and mortar, eight inches thick, and three feet high, neatly pointed where exposed to view. The chimneys are of hard brick and mortar, laid with close joints, with separate and continuous flues from each fireplace to the top, and thimbles where required. The interior side walls and ceilings of the two full stories are hard-finished on two coats of best brown mortar, and seasoned lath. The frame is of sound timber, properly framed, raised, and secured with hard-wood pins. Beams and rafters are placed two feet apart from centres; studding, sixteen inches apart. The beams are bridged. All window frames have plank stiles, and timber sills of clear pine. The sash are an inch-and-a-half thick, glazed as indicated in the plans, and hung to balance-weights with good cord. There are outside blinds to each window above the cellar, properly hung and fastened. The outside of the upright frame is first sheathed over with hemlock boards, next covered with rosin-sized paper, and finally inclosed with pine clap-boards, to the hight of the belt course. Above this it is shingled with eighteen-inch pine shingles, laid to two lines three-quarter of an inch apart, the shingles alternating, except in the front gable, where the butts are rounded and laid to curved lines. The clap-boards show four-fifths of their width, and the shingles one-third of their length to the weather. The porch and bay window are constructed of clear pine, resting on locust posts, and lattice work. The ceiling is narrow boarding, and the columns are six inches, turned. The roofs are of eighteen-inch pine shingles, laid five-and-a-half inches to the weather on shingling lath. The ridges are saddled with pine boards. Cottage gutters of tin are "laid-in" on the second course of shingles, and three-inch tin leaders convey all roof-water to the ground. The porch and stoop flooring are of one-and-a-quarter and four-and-a-half inch clear T. & G. pine. Inside floors one by seven inch T. & G. spruce, all thoroughly nailed to each bearing. The outside floors are laid in paint. The main stairs are constructed of clear pine in the best manner, with newel, rail, and hallusters of ash; cellar stairs are strongly constructed of plank, and the outside steps are made as shown in figures 1 and 2. All jambs are rabbetted plank, with three-inch grounds, and four-and-three-quarter reeded architraves, with foot and head-blocks. Panels are formed under each window in the two stories, and the base in all parts matches the trim. The closets are shelved and hooked in the usual manner. Molded hard-wood saddles are placed to doors, and turned stops where required. The doors are seasoned pine, panelled and molded, the outside and room doors being one-and-a-half inch; closet doors one-and-a-quarter inch thick. The front door, outside, is heavily molded, and has heavy butts (loose joint), lock with night-latch, and bolts. All other doors have suitable butts and mortice locks, with brass bolts and keys, knobs of white porcelain. Sash fastening to all windows.

All outside work usually painted, has two coats of best paint, inside stained, filled, and hard oiled. All knots shellacked, nail holes and other defects stopped with putty before painting. Colors and stains as directed. The estimate of material and labor are as follows:

55 yards excavation, @ 25 cts. per yard	$ 13.75
12,000 bricks in foundation and chimnies (complete), @ $15 per M	180.00
32 feet blue stone (complete), at 30c. per foot	9.60
500 yards plastering (complete), @ 30c. per yard	150.00
250 wall strips, @ 13c. each	32.50
2,750 feet timber raised (complete), @ 30c. per M	82.50
100 joints, @ 18c. each	18.00
11 locust posts, @ 30c. each	3.30
175 sheathing, @ 18c. each	31.50
145 lbs. paper, @ 4c. per lb	5.80
220 clap boards, @ 18c. each	39.60
200 shingling lath, @ 6c. each	12.00
60 hunches shingles, @ $1.50 per bunch	90.00
40 narrow ceiling, @ 20c. each	8.00
Cornices (complete)	20.00
1,330 feet flooring, @ 4c. per foot	53.20
13 large windows (complete), @ $8 each	104.00
7 small windows (complete), at $4 each	28.00
18 doors (complete), at $7 each	126.00
2 mantles (complete), at $12 each	24.00
2 stairs (complete)	40.00
1 pump and sink (complete)	12.00
Porches (complete)	87.00
60 feet tin work, @ 10c. per foot	6.00
3 kegs nails, @ $3 per keg	9.00
Carting	15.00
Painting (complete)	150.00
Labor, not included above	175.00
Incidentals	24.25
Total Cost	$1,500.00



Fig. 1.—FRONT ELEVATION OF COTTAGE, COSTING $1,500.



Fig. 2.—GROUND PLAN OF COTTAGE.

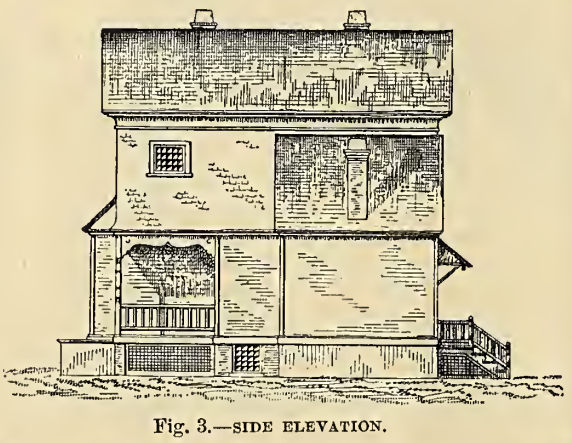


Fig. 3.—SIDE ELEVATION.

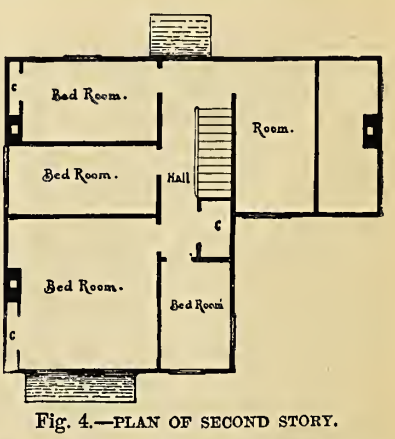


Fig. 4.—PLAN OF SECOND STORY.

What Can be Raised in Central Dakota.

R. G. NEWTON.

First and foremost raise trees for protection, fuel, and timber. For the first two needs the Cottonwood and White Willow take the lead, on account of the ease with which they can be procured, their rapid growth and perfect adaptation to the climate. Among Evergreens, the Scotch Fir will prove valuable for shelter belts. It can be raised from seed with better success and less expense than most other Evergreen trees. Seedlings a foot high, set this spring, have made a fine growth. European Larch seed treated in the same manner, has either failed to germinate, or else the few that did, just peeped above the ground and died. The strong, and rapid-growing Russian Sunflower can be successfully grown. The first use is for protection. Plant the seeds in rows through the garden, eight or ten inches apart in the row, with the rows ten to sixteen feet apart. The plants will ward off the winds, and between them can be grown any vegetables of the tender varieties. They will also prove valuable between strawberry beds. If the stalks are allowed to stand, they will hold the snow on the beds through the winter. The heads, gathered when ripe, yield one of the best kinds of food for the poultry yard. The stalks furnish a far better fuel than hay or corn. All the grains, wheat, oats, barley, succeed here, and most of them can be grown in the highest perfection. Many persons come here with the idea that they can put in their seed in the most slovenly manner and secure good crops. They would be heartily ashamed of such farming where they came from, but here—we are sorry to say, they sometimes succeed. In the long run good farming always pays the best here as elsewhere. Flax on sod will yield quick and sure returns, and corn is a fine and profitable crop in Dakota.

For root crops this region cannot be excelled. Potatoes grow as large, sound and mealy as the most exacting could desire. Turnips and beets are large, sweet, and tender. Radishes are more crisp and tender than we ever raised at the East, and pumpkin, squash, and melon vines act as if they disliked to see so much idle ground, and do their best to occupy it to good advantage.

The success with all kinds of live stock attained in every part of the Territory, is sufficient guarantee of the ultimate triumph of this branch of farming. The plentiful supply of wild grasses, with their well-known fattening properties, the ability to grow the best of the tame grasses, and good water in abundance, all combine to prove that Dakota will soon excel in raising live stock. The winters compare favorably with those in New York.

Camellias—How to Treat Them.

Did you ever see a large Camellia plant in full blossom? If you have not, I will risk my reputation hy saying that all other flowers within my knowledge, barring the rose, dwindle into insignificance when eompared with it. It excels the finest rose in doubleness and form of its flowers, and puts the virgin lily to shame for spotless beauty and whiteness; if it only possessed fragrance, it would he unquestionably the Queen of the floral world. What I shall have to say in regard to this plant, I hope will have the effect of introducing it into many homes where it has hitherto been little known. Few outside of professional florists have undertaken to cultivate the Camellia, for the reason, we suppose, that it is thought to he quite an impossibility to raise and bloom it successfully outside of a green-house; this is a mistake, although many believe it otherwise. I contend that Camellias can be as easily and as successfully grown in the window as the rose or geranium.

Camellias hloom in the winter, and at no other season of the year. Plants should be purchased of the florist in the fall or early in winter, and such plants as have flower-buds already formed; those plants, if kept in the right atmosphere, will bloom profusely, but they must have an atmosphere of fifty degrees until the buds are all expanded, after which there will be no danger of the flower blasting. As soon as the bloom has all passed off, the plants should be taken from their cool quarters, and placed with the other plants in a warm temperature, and watered freely, to encourage a vigorous growth previous to removing them out-of-doors in the spring. As soon as all danger of heavy frosts is over in the spring, the plants should be taken from the house and removed to some shady location, under a grape-arhor, in a pit or frame covered with shades. Here leave them standing in the pots, "plunging" the pots in earth or sand to prevent too rapid drying out. Summer is the period in which the flower-buds are formed that bloom in winter, and the plants should he kept growing, and watered freely throughout the summer. They must be left out-of-doors as long as the weather will permit, but, on the approach of frost, take the plants into the house, and let them stand in a cool room, where the temperature is not over fifty degrees. This is the critical time, if they are removed into a warm temperature of seventy or eighty degrees, the buds will all blast and drop off.

If the plants are large and well-budded, a succession of bloom will be obtained throughout the entire winter. There are a number of varieties, embracing colors from red, pink, variegated, etc., to the purest waxy-white. The Double White Camellia Japonica, the white sort, is the most valuable for its bloom, the flowers being sometimes four to five inches in diameter, exceedingly double, with petals imbricated, and of a waxy texture. They are invaluable for funeral occasions, when pure white flowers are required. Plants are multiplied by either grafting or budding them on the common stock; it is almost impossihle to raise plants from cuttings, they are slower than Azaleas to root. J. S.

Holiday Greeting to One and All.

The cluster of engravings on the first page of this issue of our paper presents some of the varied enjoyments of the month. At this season our pleasures are marked by thankfulness to the Giver of all good, and our artist has chosen the return of the family from church, to suggest, rather than represent this feature. This is especially the season of friendly visits. Over a large portion of this country, a covering of snow makes easy communications between long separated friends, while it at the same time enforces upon the farmer something like leisure for the enjoyment of social intercourse. The exhilaration of the motion, as they swiftly glide among wintry scenes, tempt many to join a sleighing party for this alone. The young, what pleasures the season brings to them! With skate and sled, they never find the weather too cold, and their ruddy faces glow with health and the warmth of their young hearts. Older people welcome the return of winter. The crowning enjoyment of the time is the social feast, at which family and friends, after perhaps many months of separation, are gathered. Whether assembled in accordance with the New England custom, at Thanksgiving, or after the more Southern manner, at Christmas, the *American Agriculturist* sends its Holiday Greeting with a "God bless you, one and all."



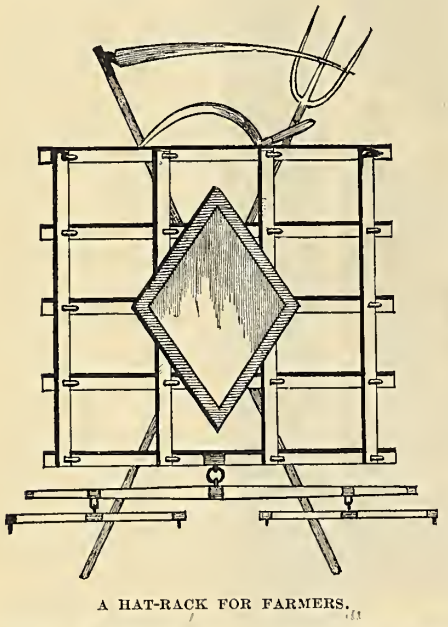
Drawn (by Folsom) and Engraved for the American Agriculturist.

High Praise from a High Quarter.

The tenth census of the United States, Volume 8, just issued, contains the following very flattering allusion to the *American Agriculturist*; "The *American Agriculturist* dates from 1842, and is one of the numerous periodicals of the same class which originated in all parts of the country at or about the same time, some of which are still in healthy existence, while others quickly subsided. The *American Agriculturist* is especially worthy of mention, because of the remarkable success that has attended the unique and untiring efforts of its proprietors to increase and extend its circulation, which at one time reached a point undoubtedly higher than was ever before attained by a journal of its class. Its contents are duplicated every month for a German edition, which also circulates widely." Probably no government publication ever before went out of its way, unsolicited, to bestow such flattering notices upon a journal published by private individuals. The time alluded to, when the *American Agriculturist* had such a large circulation, was during the war. Its friends will be pleased to learn that it is now rapidly attaining to those figures. During the past three months, the circulation has fully trebled that of the corresponding period of last year, and not since inflated war times, have the subscriptions began to compare with those received since the beginning of the present autumn campaign.

About Boy's Christmas Presents.

We do not refer in the heading to Christmas presents for boys, but to those from boys. If one of our young readers were to give his uncle a present, we should much prefer it to be something he had made with his own hands, rather than some article bought with his savings. Girls are much better off in this respect than boys, as there are so many pretty and useful articles they can make with needles, knitting, crochetting and sewing. Boys should learn to draw, and every boy can learn to use a pencil after a fashion, though all can not learn to draw equally well. A neatly executed sketch in pencil, or in water colors, makes a Christmas gift that is acceptable to any one, and especially to an older person. Boys who are skilled in the use of carpenter's tools, need not be at a loss to know what to give for a Christmas present. A carefully made, plain, small box, especially if the material is some kind of pretty wood, can be useful in so many ways, that it can hardly come amiss as a present to any friend. A boot-jack is easily made, and can be highly ornamented if you choose. A plain, strong one, has this advantage that it will be in frequent use, and thus often remind the receiver of the giver. We were in the store of an importer of fancy wares not long ago, and saw there what seemed to us a capital thing for an oldish boy to make as a present for his father, or some friend. It was a farmer's hat-rack, and a most appropriate one for the front entry (we know it is now called hall, but we like old-fashioned names), of a farm house. We drew a sketch of it for the readers of the *American Agriculturist*. The principal portion is an imitation square harrow; this has a diamond-shaped looking glass in the center, and the imitation, blunt, wooden teeth of the harrow serve to hold hats, coats, etc. Below is hung a double-tree, with two single-trees, mainly for ornament, but caps, etc., may be hung upon the ends. A scythe and fork, the handles crossed behind the harrow, and a sickle or grain hook are used as ornaments and give a rural appearance to the whole. As to materials, the one we saw was made of ash, but any other wood will answer, though some hard-wood with a well-marked grain, will look better than pine, unless it be Southern hard pine. The wood-work may be finished with linseed oil, or with shellac varnish. The teeth of the harrow should be of hard-wood, and not very sharp. They may be "ebonized," by staining them with black ink, taking care that they are thoroughly dry before varnishing. The blades of the scythe and sickle may be worked out of any thin stuff, that will not break readily, and then neatly covered with tin foil, which is fastened on with stiff flour-paste. The tines of the fork may be of stout wire, and all the ferrules should be of tin foil, painted black if you prefer. Lastly, do not forget to provide a couple of strong rings, by which to hang the rack to hooks upon the wall in the front entry.



A HAT-RACK FOR FARMERS.

Plants for Window Culture.

Lovers of flowers often make a great mistake in selecting plants for their window gardens. They go to a florist, select plants that are in bloom, purchase and take them home, and are disappointed to find that they never afterwards look as well as the day they set them in the window. Plants should never be purchased in flower. The conditions of high temperature and a moist atmosphere, under which they were brought into bloom, do not exist in the window, and plants brought from a green-house, at once commence to dwindle. Aside from this, plants are often selected, which, under no circumstances, succeed well in window culture. Many think a plant of no value unless it flowers. If amateurs could be content with an abundance of handsome foliage, with here and there a plant in flower, they would derive much more satisfaction from their attempts at window gardening. With a view to aid those who would undertake window gardening, we enumerate a few plants that will be quite sure to succeed. In the first place, as to plants cultivated for their foliage only. The most valuable of these is Ivy. A plant of either English or Irish Ivy, to be trained up over the window, is most pleasing, or Ivy may be planted in a hanging basket, to trail over the sides and be twined up the handles. For plants of this kind in pots, the India Rubber Plant, (*Ficus elastica*), is one of the best. Its leaves are large and vigorous, while the reddish sheaths to the young leaves are almost as handsome as flowers. The Umbrella Sedge, *Cyperus alternifolius*, looks something like a miniature palm, is easily cultivated and very showy. The universal window plant of Paris is *Aspidistra lurida variegata*, which has no common name. Our florists supply it, and it is an excellent plant for the window. The plant known as Wandering Jew, Aaron's Beard, and by many other names, is *Saxifraga sarmentosa*. It throws off runners, which hang over the pot or basket in a graceful manner, and though it sometimes blooms, the flowers are not showy, and its chief beauty is in its variegated leaves. Among plants to flower in the window, we place first the Chinese Primroses. If plants are to be procured from a florist, select those that do not yet show their flower buds. They will flower for a long time. Some of the Begonias, such as *B. fuschioides* and *B. multiflora*, are free-flowering, and of easy culture. The so-called Crab's-claw Cactuses (*Epiphyllum*) are excellent window plants, as are *Sedum Sieboldii*, the Cigar Plant (*Cuphea*), and Cyclamens.

Gas Tar and its Uses.

In the manufacture of illuminating gas from bituminous coal, a large quantity (amounting to about eight per cent of the coal), of a thick, black, strong-smelling liquid is collected, known as gas tar and coal tar. This is a very complex substance, and by distillation yields several oils, etc., leaving behind a solid pitch, called coke-pitch, and incorrectly asphaltum, true asphaltum being a natural product. Gas tar, as it comes from the gas works, is used for various purposes, among others, for the preservation of timber, especially fences and fence-posts, for the making of roofing composition, and in laying what are called asphalt walks. We have had complaints, that it appeared to be of little value in preserving wood, and several have inquired as to the proper method of using it. It is not unlikely, as there are different kinds of coal used in gas making, that the tar varies greatly in its properties. In England, where it is much more used than with us, one writer recommends as follows: Three gallons of coal tar, in an iron kettle, is set over a slow fire and allowed to simmer for about an hour. This should be done in the open air, as there is danger of its taking fire. After it has simmered for this time, add a handful of fine quick-lime, and stir well together. Remove from the fire, and add a quart of benzine or naphtha, or sufficient to make it work well from a brush. The coal-tar thus prepared is applied to fence-posts and other wood while hot. The writer says: "Two coats will do, and will make any kind of wood proof from all weather for years." Another writer advises to make use of the tar as it comes from the gas works, adding enough benzine (from half a gill to one gill to each quart of tar), to make it work like thin paint. It is to be applied with an old brush to the wood, which should be perfectly dry.

Chrysanthemums as Window Plants.

Those who treat Chrysanthemums exclusively as garden plants, fail to get all from them that they are capable of doing. In most seasons, when left to bloom in the beds, severe freezing makes an end of them long before the flowering is over. If the plants, or a sufficient number of them, are potted when the buds appear, they will make most showy window plants, and keep in good condition for a long time. Their season may be greatly prolonged if they are kept in a room in which there is no fire. After the flowers have passed their prime, cut the stems entirely away, and keep the pot in the cellar, or in a frame, until spring, when the roots can be planted out again. Those who know only the old garden form of many years ago, will be surprised at the great improvement that has been made in the chrysanthemum. The forms of the original large-flowered Chinese kind, (fig. 1), are so numerous, that they are separated into classes or groups, according to the form of flowers, and we have the anemone-flowered, the recurved, the incurved, and other groups. The set with very small flowers, figure 2, known as pompons, do not make such a show as the large-flowered kinds, but they are exceedingly neat and pleasing. The Japanese chrysanthemums (fig. 3), are of comparatively recent introduction. The florets of these are much longer than in the others; this gives them a tassel-like appearance, quite unlike that of the forms of the Chinese. Some of these flowers are so graceful, that they are used as cut flowers in bouquets and other floral work. The chief fault with chrysantbemums as window plants, is their hight, their tall stems tending to lose their leaves, and become "leggy" below. This can be prevented, and the habit of the plant changed, by pinching the growing stems, when they are at the desired hight. This will cause each of the stems to branch, and form neat, compact, bushy plants.



Fig. 1.—LARGE CHINESE.



Fig. 2.—POMPON.



Fig. 3.—JAPANESE CHRYSANTHEMUM.

Care of the Banks of Streams.

While it is very desirable to have a stream of water upon some part of the farm, the advantages attending it are sometimes more than offset by the damage resulting from a freshet. A farmer of our acquaintance had a small stream or brook crossing a portion of his farm in a rather tortuous course. As this was visible from the road, the irregular ways of the stream were not in accordance with his ideas of neatness and regularity, and he at considerable expense had the course of the stream straightened, and the water was made to flow between straight banks, like a ditch. The stream, though it had occasionally overflowed, had given no particular trouble, but after its course was altered, during freshets, and at every time of high water, the bank was worn away in places, and repairs were often required. This became of such frequent occurrence, that the farmer after a while abandoned the attempt to make the water flow in a straight course, and being left to itself, the stream resumed almost its original crookedness. The washing of the banks of a stream depends in part upon the nature of the soil, and in part upon obstructions in the stream, which direct the water against a particular portion of the bank, and soon wear it away. Stones, stumps, and all other obstacles to the free and even flow of the water should be removed. Places in the banks, that have a tendency to wash, may be strengthened by planting willows, the fine roots of which permeate the soil for a great distance, and aid in preventing washing. The White, or the Golden Willow, will answer to plant; they should not be allowed to grow up as trees, but be cut annually like osiers. When the bank of a stream has been broken away, the damage should be repaired as soon as the water subsides. The method of doing this will depend upon the materials at hand. One plan is, to drive a row of piles or stout posts, about nine inches apart along the break, and two to three feet into the soil. These are strengthened by nailing a string-piece to the posts near their tops, and another below. Brush is laid in behind the piles, earth is placed on the brush, and well trodden down, and the surface of the bank sodded. If stones are abundant, they may be used in repairing the injured bank. Figure 1 shows the manner in which they are laid, and the method of strengthening the wall by means of piles and timber. Another method of repairing a washed-out bank is shown in figure 2. Here piles are driven in a slanting direction, as at *a*; these are supported by others, driven in the opposite direction (*b*), and the two rendered firm by short pieces (*c*), nailed across between the two. Planks are laid close together on this frame-work, and securely nailed. Earth is filled in behind and firmly packed. The banks should be turfed, as this serves as a protection when the water rises, and also improves their appearance.



The sun that brief December day
Rose cheerless over hills of gray.
WHITTIER.

Drawn and Engraved for the American Agriculturist.

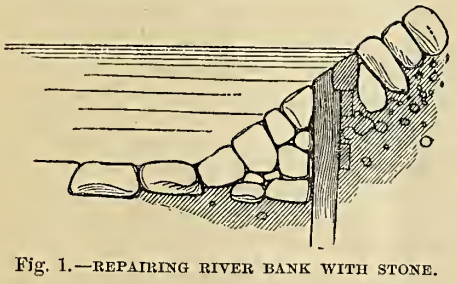


Fig. 1.—REPAIRING RIVER BANK WITH STONE.

Litter Swine Lightly.

There is but little danger of horses, cattle, and sheep being given too much litter; but where swine have a shelter that wards off winds and rain, and where the hogs are allowed to herd together, they require very little litter. Giving them too much is a common error, and is the source of nearly all the bronchial and pulmonary diseases which affect hogs in the late winter and early spring. The body of the hog is of such a nature, and these animals lie so close together, that if they have for litter a poor conductor of heat, they become overheated in the shelter and chilled when they come outside. But the liquid excrement of swine is too valuable to be lost, and they should be supplied with dry earth. This affords a convenient means of saving both solid and liquid excrement, and does not lead to disease. When hogs rapidly foul their bed, the litter should be removed each morning and a new quantity supplied.

To be profitable, the litter must be properly composted. Build a four-square pen of poles in any convenient situation, and place a roof over it that will effectually ward off the rain. Into this pen throw the litter and manure, being careful to keep the mass level or lowest in the middle. There is no drainage from the pen, as there is a roof over it. Use enough litter to hold all the urine; it rots well, rarely requiring forking-over before using. It is, however, easy to build another pen at one side, and throw the compost from one to the other. Frequently fork over the surface, going as deep as possible, scatter shelled corn over it and turn in the hogs, being careful to turn them out as soon as they have done rooting. If the hogs do not go deep enough, make holes with a sharpened stick, and fill them with shelled corn. An enterprising hog will go to the bottom. J.M.S.

Does it Pay to Grind and Cook Grain?

No general answer can be given to this question. For man it undoubtedly pays. Most of us think we have more brains than stomach. We find, or think we find, bread more digestible than raw wheat, and consequently more nutritious. For young animals, we believe it frequently pays to grind or cook grain. We want something that will in part take the place of milk. It is not an easy thing to find a substitute for milk. Oat-meal gruel, or corn-meal gruel, with a little fat in it, we have found excellent for young pigs. Milk would be better, but we are often short of milk. For sheep it seldom, if ever, pays to grind grain. Beets and cabbages it does not pay to cook; cows, sheep and pigs will eat all you can spare them, raw. We have known turnips cooked for pigs and mixed with meal; it is doubtful if it pays to thus prepare turnips. Potatoes, contain much starch, and can be cooked to great advantage. When grain is very high in price, it pays far better to grind and cook it, than when it is low in price. When sixty pounds of good, white winter wheat will only buy sixty pounds of so-called corn-meal, it does not pay to draw the wheat to the miller, and bring back the corn-meal to feed to pigs, cattle, and horses. If a farmer attends to the feeding himself, he can give whole corn, oats, rye, barley, and wheat to his pigs, cows, sheep, and horses, in such a way that little will be voided whole, or undigested. Grinding and mixing the meal with cut or chaffed hay, straw, or corn-fodder, may be more economical in the hands of the average farmer than feeding whole grain. But then, meal cooked or uncooked, can be fed in such a careless way, that a large percentage of it will pass through the animal in an undigested form. With proper conveniences, we believe soaking grain for twelve, twenty-four, or thirty-six hours, in cold or warm water until it is soft—but not sour—always pays well, even for feeding sheep. To say the least, opinions differ as to the importance of cooking fodder for the live stock.

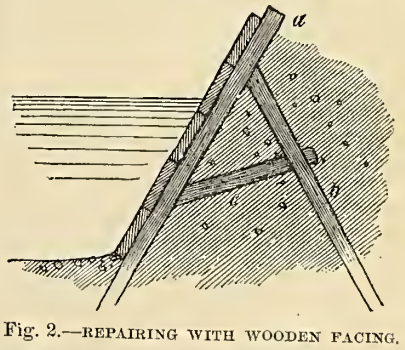


Fig. 2.—REPAIRING WITH WOODEN FACING.

Scattering Fertilizers by Hand.

Professor Storer, of Harvard University, has been experimenting with a view of answering the question: "About how much of a given fertilizer would a man naturally throw from his hand in sowing an acre?"—A half acre was measured off, marked with stakes, and a careful laborer, familiar with such work, without any knowledge of the intended experiment, was set to scattering different kinds of fertilizers, "as if he were sowing grain thickly." The following were the results per acre: nitrate of soda two hundred and fourteen pounds, muriate of potash one hundred and seventy-three pounds, superphosphate of lime one hundred and seventy-three pounds, blood, bone, and meat-dust fertilizer one hundred and twenty-four pounds. The last named substance was a light, soft and dry powder, the dried refuse of a slaughter house, weighing fifty pounds per bushel. The superphosphate was a dry powder, weighing sixty-eight pounds per bushel, and the potash-salt was likewise a fine powder, sixty-nine pounds to the bushel. The nitrate of soda was somewhat coarse, and a bushel weighed eighty-eight pounds.

A second set of sowings, was likewise made by a tall young student in every way the opposite of the careful laborer. He carried the fertilizer in a bag slung on his shoulder, and walked at a more rapid pace than his predecessor, who carried the fertilizer in a pail upon his arm. His scatterings were: nitrate of soda one hundred and ninety-four pounds, and muriate of potash one hundred and sixteen pounds. The difference in the case of the soda-salt is not great, and two hundred pounds may be taken as the average amount a person will conveniently scatter upon an acre; with the potash salt the difference between the sowings was greater.

Ivies—Growing and Training.

The Ivy is one of the oldest and most venerable of all climbing shrubs, and preëminently the poet's vine. In some of the older countries, especially in England, where the climate is particularly favorable to its growth, the Ivy is very attractive, and is said to reach the greatest perfection there. Travellers who have journeyed through that country, describe the old Ivy as clinging closely to, and completely covering the walls of ancient castles and churches, and often it runs rampant over the fields, mounting stone walls, clinging to trees, etc. The Ivy in our climate is entirely hardy, enduring the severest winters without protection. If the vine is allowed to grow over the walls of a dwelling, either on the inside, in a living-room, or on the outer walls of a building, it is not only beautiful as an ornament of the home, but beneficial; in a sanitary point of view it is regarded as useful. Some plants of Ivy growing in the living and sleeping rooms, will do more to keep the atmosphere of the apartments pure and wholesome, than anything we can possibly imagine, and we recommend their more extensive cultivation in malarial localities. The Ivy may be easily cultivated from slips or layers. In soil, sand, or even in pure water, cuttings will root, and they will take up with almost any kind of soil, but that which can be easily kept loose, is preferable. The Ivy is partial to shade, and if it never saw the sun it would make no difference, as it would grow and flourish just the same. There is no sight more attractive in a window-garden than a fine Ivy vine trained up the casement, over the wall and ceiling; its dark, rich, glossy leaves, and thrifty look, make it an object to be admired. When grown in pots in the house, the soil will soon become exhausted, if the plant is growing rapidly, and it should be changed or enriched with decayed manure at least once each year, care being taken not to disturb the roots to a great extent. It is a mistake to allow Ivies too much pot-room; they will do better if the roots are considerably confined. Soap-suds or liquid manure if applied once a month when the plants are growing, will promote a luxuriant growth. When dust accumulates on the leaves, as it will, if grown in-doors, wash off with a damp cloth or sponge; if this is long neglected, you need not be surprised if you soon find that the leaves are covered with red-spider or scale-lice. Cold water is the best wash; when using this, be sure and treat the underside of the leaves as well as the upper surface. We would recommend the "English Ivy" as being the best sort for general cultivation.

Cuttings in the Window Garden.

Those who try to raise plants from cuttings in their window gardens, fail more frequently than they succeed. A cutting is a small branch, or short piece of stem, and usually with its leaves.



A CUTTING POT AND BELL-GLASS.

These leaves are constantly evaporating water, which, so long as the cuttings remain attached to the plant, is supplied by the root. When the slip is severed from the plant, the supply of moisture is removed, but as evaporation continues, the leaves wilt, and the cutting itself will soon die. The air of our living rooms is exceedingly dry, and is thirsty for moisture. If cuttings are set in a pot of soil, the dry air takes up moisture from their leaves, more rapidly than it can be supplied from the soil, through the wounded end of the stem, and the slips soon fail. If we place a bell-glass over the cuttings, as in the engraving, the air within the glass soon becomes saturated with moisture, and, as it can take up no more, it no longer makes a demand upon the moisture of the cuttings. Preventing evaporation in this manner, is often called by gardeners "keeping close." Usually the edge of the bell glass sits upon the surface of the soil of the pot. Some pots are made with a groove in their rim, which receives the edge of the glass. Small cuttings may have a tumbler, goblet, or other glass turned over them. All who would grow plants from slips, cannot procure such glasses, and must contrive some other method of "keeping close." A small glazed frame, like a Wardian case, may be set over a pot of cuttings. The pot may be set in a tight box of the proper size, which may be covered by a pane of glass. If the top of the box be cut sloping, like a hot-bed frame, more light will be admitted. There are but very few plants that have not been propagated by cuttings of some kind, and if the amateur gardener fails with one method, he should try another.

Wardian Cases—Jardinieres, etc.

A Wardian Case consists of a base, generally an oblong box, covered with a square glass frame, under which certain plants can be successfully grown. This is now considered by many as a desirable ornament in the window-garden during the winter months. When neatly and artistically filled with suitable plants, a Wardian Case becomes a thing of beauty. These cases can be easily and cheaply made by any one possessed of ordinary mechanical skill. The base or box should be oblong in shape, at least eight inches deep, and lined inside with zinc or tin-plate, securely soldered to prevent the water and soil from staining the wood. A case made in this manner will endure a number of years without decaying. Over the case a square glass frame should be made to fit snugly, and it should be from eighteen inches to two feet high, so as to allow the plants that are to grow under it plenty of room. When the case and frame are finished, the whole should be mounted upon a stand, or legs can be made, and under them place casters, by which to easily move the case about. Before planting, make a small funnel hole through the bottom of the box, to allow the surplus water to escape rapidly, and before putting in the soil, cover the bottom of the box two inches deep with broken crocks or charcoal, or even gravel, to facilitate a rapid drainage, a matter absolutely essential to the healthy growth of plants. Fill the box within an inch of the top with fine, rich, peaty loam, and all will be ready to receive the plants. Those suitable for growing in a case of this kind, should be such as will live and thrive in a moist, still atmosphere, and are of slow growth; all rampant, rank growers must be discarded as being wholly unsuitable, as they would soon become of such proportions that they could not be confined in so limited a space. The following plants are eminently suited for Wardian Cases, Jardinieres, etc., viz: fittonias (gymnostachyum), fancy caladiums, tradescantias, *Cissus discolor*, and gesnerias. Some varieties of crotons, dwarf-growing begonias, fancy ferns, lycopods, etc., etc., are very useful for this purpose. In arranging the plants in the case, particular care should be taken to have them so placed that the tallest growing ones will be in the center, and grading downward, according to size, the lycopods being on the bottom. The whole surface of the soil may be covered with the trailing Lycopodium; by placing small pieces here and there, it will soon spread over the entire surface, making a beautiful ground work of purplish-green. Small, highly-colored sea-shells, and beautifully-colored pebbles, are scattered about among the plants, to enhance the beauty of the whole. After the case has been filled, the soil should be thoroughly soaked with lukewarm water. Remove the case to a shady place for three or four days, to allow the plants to recuperate, after which it can be placed in the full light with safety. The lid or top should be lifted whenever there is excessive moisture on the inside, which will be indicated by the moisture trickling down on the inside of the glass. As a rule the plants should have fresh air, by lifting the lid for a few minutes each day, but beware of all cold draughts, or too much exposure to chilly atmospheres. Ordinarily, once a month is often enough to water. This must always be governed by the circumstances, but they should never be allowed to become dry, remembering that with warmth and moisture success is certain.

Blue Hydrangeas.

That old-fashioned flower, *Hydrangea Hortensia*, is still a favorite with many. Its enormous flower clusters are ordinarily of a deep pink color. Occasionally, the plants, without any known cause, produce light blue flowers. Flowers of this color are more showy than the ordinary pink ones, and many have claimed to be able to produce blue flowers at will, by giving the plants particular mixtures of soil, especially those containing a large proportion of peat or muck. Those who have tried growing the plants in such soils, have rarely been rewarded by blue flowers. An English gardener now claims to be able to change the flowers to blue, by the following treatment: He mixes a good potting soil of loam, leaf-mould, sand, and a little bone-dust, and to each bushel of such soil, adds four ounces of sulphate of iron (copperas), in coarse powder. The plants, after blooming, have their stems cut back to two or three eyes. When they commence to grow, they are potted in the above described soil, shortening back the large roots. The plants are kept dormant during winter, and when they begin to grow freely the following spring, are watered, at each alternate watering, with a solution of alum, made by adding a teaspoonful of powdered alum to a quart of water. After using the alum water for two weeks its strength is slightly increased. Weak liquid manure is given, and the plants frequently syringed while growing.

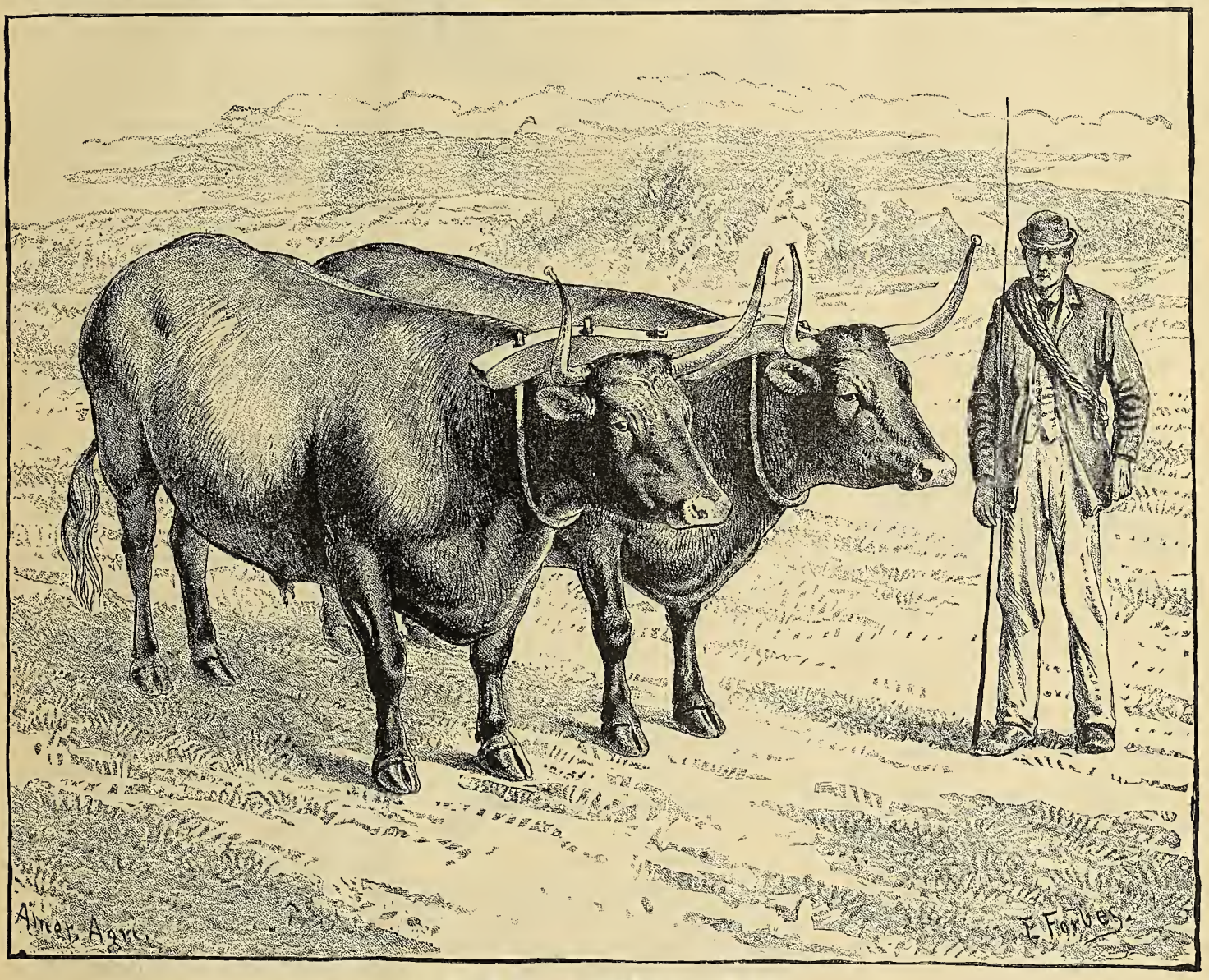
Connecticut Red Cattle—Good Oxen.

In the early settlement of New England, the cattle of the colonists came from the south of England and were largely of the South Devon blood. They were uniformily reddish, coarser boned than the North Devons, and of more variety in their shades of color. Besides, they were not bred pure, yet the red color prevailed and has ever since been the predominant color. It is possible, as Mr. Allen suggests in his "American Cattle," that some pure Devons were imported into New England in the previous century, of which we have now no record, but more likely that care in breeding the South Devons, which were common, developed their finer qualities. Soon after the last war with Great Britain, noted cattle breeders of Baltimore imported some fine North Devon—or rather well bred Devon cattle, and other importations continued to be made. It was not very long before several herds were established in Connecticut, and they "nicked" so well with the "native" red cattle that the progeny of Devon bulls and native cows could hardly be distinguished from thoroughbreds. As a result the bulls of the improved race were in demand and a great improvement was noticeable. The color was brighter and more uniform, white noses and white switches predominated, and the animals had better forms for beef, while their milking qualities were, to say the least, unimpaired.

The great hold which the breed had and has upon the heart of the Connecticut farmer rests upon the style and excellence of the working ox. There certainly is a style about them which no other cattle have, and their advocates claim extraordinary docility. They are high strung and mettlesome, like thorough-bred horses, quick in their motions, fast walkers, not timorous, willing to pull "for all they are worth," patient, good feeders, and make the very best beef. This last quality depends of course more or less on the age of the ox. It therefore pays to work them a few years and turn them into beef, when there are others coming on. Still, a good yoke of Devon oxen will last and do hard work for many years, and at twelve or fourteen years old will fatten well and make better beef than common cattle several years younger. It is rather remarkable that a team of oxen which will walk off on the road four miles an hour, or trot with a wagon like a pair of horses, will draw a plow in rough stony land slowly and carefully, being watchful when it strikes a stone or is "snagged" in a root, not to jerk, or throw their full weight upon it unless so directed, they as it were, trying to ease the plow over obstacles. In this respect good oxen seem to have more sense than ordinary horses, proverbial as the latter are for "horse-sense."

Breaking steers is the Connecticut boy's pastime and pride. He often begins with calves at six months old, yokes them and has them trained not only to "come up!" "gee!" "haw!" and "back!" but to drive without the yoke, single and double, sometimes to kneel, and to lie down. The steers are fit for some kinds of light service at three, efficient at four, and in perfection as oxen at five.

The engraving which we present is an accurate portrait of a pair of five-year-old Devon oxen, raised in Litchfield Co., Connecticut, which Mr. Stewart Hartshorn, of New Jersey, has just purchased, and which our artist has met and sketched on their passage through this city. The engraving likewise presents a life picture of the Yankee boy, who accompanied the oxen, with his long whip, and a coil of rope loosely swung over his shoulder, like a Highlander's plaid on his native heath.



A YOKE OF DEVON OXEN.

Drawn (by Edwin Forbes) and Engraved for the American Agriculturist.

Provide Green Food for Poultry.

Green food is fully as essential for poultry in winter as in summer. Their confinement to dry food during the continuance of cold weather goes far to account for the scarcity of eggs at that season of the year. Fresh winter eggs are always in demand and bring a good price in every market. Hens, like cows, should be producers as well as consumers during the cold months of winter. Farmers, as well as fanciers, should have a supply of green food safely stored away for the winter use of the poultry. Fowls are not very particular as to the kind; they readily eat celery, tops of onions, turnips, etc.; lettuce, cabbage, and apples also are relished. If such supplies have to be purchased, it is cheaper to buy one or two hundred heads of cabbages of second quality, which can be had at a low figure in autumn or early in the season. These should be delivered with their roots, and buried up to the head in sand in the cellar. Hang a head in some convenient place in the house where the fowls can pick at it.

Feeding and Care of Farm Animals.

PRIZE ARTICLE—BY "A WESTERN FARMER."

Poultry.

It is not advisable to have poultry in large flocks. Even with the best of care and food they cannot be kept thrifty and healthy for any considerable period of time. Experience teaches that sixty hens, properly housed and cared for, will yield twice as much clear profit as two hundred crowded or neglected. There are many varieties of fowls, and which to select is often a perplexing question. The large, heavy breeds, require more care and food than small, active fowls, but they are the best for broilers, and when fat, always sell well in market. They are quiet, rarely traveling far in search of food, and for this reason are best for small farms, or where they must be yarded a large portion of the year. On the other hand, where range is unlimited, the smaller, active breeds, are preferable, as they will find nearly all the food they require, thus costing little for keep, while, as a general thing, they are the best layers. The average farmer will find a cross between the large and small breeds the most satisfactory. A flock of chickens can be readily improved by the use of well bred cocks. Two are sufficient for an ordinary flock.

The house shown in figure 1, is fourteen by twenty-eight feet, eight feet high in the center and five at the sides. The walls are dressed barn-siding, nailed on both sides of braced studs, the space between being filled with dry sawdust, which makes them six inches thick. They rest on a foundation of brick, eight inches wide, which renders them absolutely vermin-proof. The roof is double, filled in with sawdust, same as sides; floor is bare earth, smooth, dry, and hard. A door is in the east end. In the bottom of the door is an opening twelve by eighteen inches square, fitted with a sliding shutter, for the poultry to pass in and out. The two windows rest in grooves, so that they may be slid open, and are covered with coarse wire screens. Extending from the south side of the building is a glass-covered run, nine by twelve feet, the floor of which is eighteen inches lower than that of the main building. In its outer end are two openings for ventilation, twelve by eighteen inches square, covered with wire screen, and fitted with sliding shutters. In the main building are the perches, *r*, *r*, figure 2, placed two and a half feet above the floor, and fastened to the wall with strong hinges, so that they can be raised when the droppings are scraped out. The nest boxes, *n*, *b*, are fastened to the walls six inches above the floor; the cover over them slopes down, so the fowls cannot use them for roosts. The feed trough, is four inches wide, four deep, and eight feet long. The water box, *w*, is a tin box or deep pan, set inside a wooden box having a hole three by four inches square in its cover. The sand, gravel, and bone-boxes, *o*, *p*, *q*, are near the door. A dust-box is in the glass addition. A breeding-pen, *b*, *p*, is seven by eight feet square, separated from the main room by a wire-screen partition, with entrance, *e*, in one corner. It contains nest boxes, perch, etc. This house, though a comparatively cheap affair, is substantial, and answers the purpose for which it is designed much better than many houses ten times as costly.

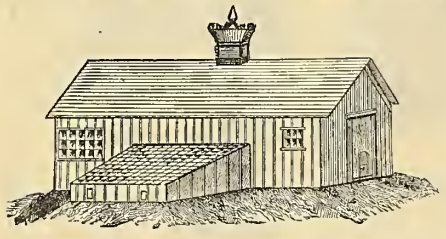


Fig. 1.—A SMALL POULTRY HOUSE.

WINTER CARE OF FOWLS.—We will start with thirty one-year-old hens, thirty pullets and two cocks as a sample flock. As eggs bring about three times as much in winter as in summer, our efforts will be directed to inducing the hens to lay during that season. About the middle of October the cocks are shut up in the breeding-pen. The hens are fed twice a day with all the food they will eat. The morning meal consists of cracked corn, wheat screenings, oats, and boiled potatoes mixed together with boiling water, covered up and allowed to stand an hour or so. A few chopped onions, pieces of meat, or pork scraps from which the lard has been tried, and a small quantity of cayenne pepper are added when fed. The evening meal may be cracked corn, oats, and wheat screenings fed dry. A head of cabbage is fastened to the wall, about six inches above the floor, for fowls to pick at. Apples are relished and may be fed occasionally, chopped fine. Fresh water is supplied daily. Warm skim milk is excellent in cold weather. Rinse the troughs out well every day. A few barrels of dust are placed in the house in summer for use in winter. The dust-box is a foot deep, four feet long, and three wide. It is kept well supplied, and on bright, sunny days the fowls gather in the glass apartment and enjoy the sun and a dust bath. The sand and gravel boxes are kept full of coarse sand and fine gravel. The bone box is always supplied with bones, ground or broken to the size of peas, old plaster or lime, and crushed oyster shells. Nest boxes are cleaned out once in three weeks, sprayed with kerosene, and lined with fresh straw slightly sprinkled with sulphur. Perches are sprayed with kerosene once a month. The droppings beneath them are cleaned out every morning, and the floor of the whole house is scraped once a month with a scraper made for the purpose, and shown in figure 3. About once in two months all the fowls are driven out of the building, the ventilators closed, and a large pan full of live coals set inside, upon which is thrown a double handful of sulphur. The door is quickly closed and kept shut for an hour, when the fumes will destroy every living thing in the building. The windows and ventilators are opened and the house well aired before either person or fowl is allowed to enter. Once a year the entire interior of the building receives a coat of fresh lime whitewash to keep it clean and sweet.

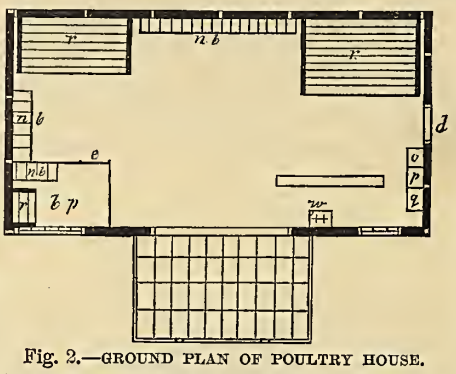


Fig. 2.—GROUND PLAN OF POULTRY HOUSE.

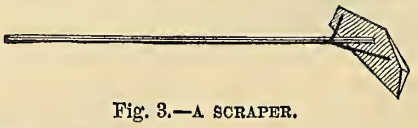


Fig. 3.—A SCRAPER.

PEKIN DUCKS.—Ever since its first introduction into this country, the Pekin duck has steadily gained in popularity, until now it takes a front rank amongst desirable breeds. Like any other poultry, this breed does not please all equally well, though the majority of farmers and breeders who have tried the Pekins thoroughly are satisfied with the results. In size they take the lead, when given a chance to properly mature and develop, by hatching early and feeding liberally and regularly. They are pure white, hardy, vigorous, and prolific. They stand confinement as well as any other ducks. By hatching the eggs under common hens, a single trio of ducks kept constantly laying will produce a large flock in a single year. Some breeders contend, and with good reasons, that the only mother the ducklings need is a mud-puddle, and if they have plenty of water and a comfortable, clean house, to run into at night, they seem to get along as well as when under the care of a foster mother—an old hen.

Light in the Winter Quarters.

An abundance of light in the shelters provided for stock in winter, is a point which should not be overlooked, for darkness is as injurious to animals as it is to plants. Human beings spending much of their time in dark tenements, are pale, sickly, and dwarfed. Confining the lower animals in dark quarters, has a similar effect—retarding growth, and reducing vigor. Much of the blindness among horses is caused by their being brought suddenly from a dark stable into the strong sunlight, which is especially trying when reflected from snow. The openings in shelters are closed with boards or straw, "to keep out the cold;" unfortunately this keeps out the light also, so that a majority of the stables in this country are dark for three-fourths of the time during which animals are confined in them. This is all right at night, but during the day time, the stable should be as light as the dwelling, and made so in the same way—by glass windows. A few panes of glass and sash, will not cost much, and a more profitable investment can not be made. Shutting up shelters so closely, also shuts out the pure air. Leave a wide crevice under the eaves. The inside impure air becomes heated and lighter, as it becomes foul, and will rise and pass out at this crevice, and the outside, pure air, being colder and heavier, will enter. The animals will have pure air, and no blasts will strike directly upon their bodies. Leaving openings in the roof, and building small houses (often improperly called cupolas), with lattice-work sides over them, is a splendid way to ventilate barns and stables, and improve the looks of the building.

Improved Cattle Tie.

While the *American Agriculturist* has always recognized the convenience and excellence of stanchions for cattle, it has protested against the obvious cruelty of locking any animal's head so that it can only move up and down between two bars. The improvements upon the stanchions have been numerous and all more or less inconvenient, but they have given very little more liberty to the captive. In our May number a chain "tie" was suggested, which had been put in use and approved itself to the writer. The common chain tie passes about the animal's neck, and slides up and down upon a post or iron rod, attached to the stall or manger. This tie is similar, except that the neck-chain is connected with two posts or rods, upon which it slides. The improvement consists in using rings upon the posts, and connecting the side-chains with the neck-chain by means of snap-hooks, attached to the central ring, as shown in the diagram. This enables one to adjust the tie to any width of stall, say from three to four feet, and have it reasonably taut. The advantage of this method of fastening cattle over any other, is, that while great freedom is given the head, so that a cow can lick both sides and lie down with her head upon either side, she has no more backward and forward motion than if she stood in stanchions, hence must drop her droppings in the gutter—if the stall is of the proper length. There is a constant tendency to give cow stalls too long a floor. Every cow should lie with her rump four to eight inches beyond the floor. The only objection to this is that the cows' tails will sometimes become wet from lying in the gutter. If, however, this is given a pretty sharp fall and considerable breadth, water will not accumulate and there will be no inconvenience experienced on this score.



AN IMPROVED TIE FOR CATTLE.

Among the Farmers.

New Series.—No. 8.

BY ONE OF THEM.

One of my good neighbors has a small family of excellent cows which he has bred for four or five generations. They have been the especial care of an old farm hand whose heart would have been broken if he had been supplanted by another. The old man died, and the milk began to increase. The cows had very little ground feed at any time, but have been tethered on a piece of fine mixed grass and clover, the latter predominating, and at night were fed cut clover or corn fodder. The increase amounted to four to six quarts a day from three cows, none of which were fresh. There was no change in the feed, at least no essential change; but every thing now goes on like clock work. They are milked at the same hour, watered regularly, turned out and brought in on the minute, and the result is what I have stated. It is rare that one has so complete a demonstration of a fact which we all know, but to which we rarely give sufficient heed. A cow giving milk offers thus a means of ascertaining the effect of regularity and care by its increased flow. This can be conveniently measured and is almost sure to attract notice. Good results of the same kind follow a similar system of regularity and good care in feeding and watering horses, but we have no such measure.

I have often noticed, however, both with my own and my neighbor's horses, the effect of a change of hands. Poor grooming and irregularity will pull down a horse very fast, while, with exactly the same feed, good grooming and regularity will bring a horse rapidly into condition.

Who of us has not experienced the effect of irregularities of living? Many a man if he goes two hours beyond his regular meal time without eating something, will have a headache. Some persons, if deprived of rest or of their usual beverages, for example, coffee for breakfast, have their enjoyment of life seriously interfered with. No doubt similar causes produce similar results with our domestic animals, and as good digestion waits on placidity and quietude, and as milk, flesh and condition depend primarily on good digestion, breeders and feeders ought especially to study the conditions which contribute to these results.

Getting Horses into Condition.

"Condition" in horses is not fat—far from it—it is hard, tough, elastic muscle, which may be actively worked without tiring the horse, without sweating, and without exhaustion of the vital forces, unless the exercise is utterly excessive. A horse out of condition is exhausted by a half mile or a mile trot, comes in puffing and breaks out in a sweat, while one in condition returns all the fresher in appearance for having his blood stirred. What makes the difference? Proper feeding, good grooming and regular work or exercise, and enough of it. All exercise tires the muscles brought into play—a tired muscle needs feeding. The feed for the muscle is digested food. After any muscle has been taxed it is for some time in a condition to appropriate from the blood the proper elements to build itself up and increase its strength. When a horse is fed immediately before labor, the food remains undigested until labor ceases, and then is liable to do harm. All horsemen know that a horse should not have a feed of grain when warm or until he has cooled off, yet when they start a horse off to any kind of hard work or road work before his food has time to digest he is liable to be injured by it. After labor, as soon as a horse cools off and is rested, the blood, which the use of the muscles drew to the extremities, returns and is ready to take active part in the work of digestion. Then is the time to feed.

To get a horse rapidly into condition, he should be well worked or exercised according to his strength; when brought in, vigorously rubbed off and down, and when dry, cool and rested, fed. His food should be good hay when his appetite is sharpest, followed by grain (oats) which in quality should be unexceptionable, and in quantity gauged according to the work he does. Fat will sweat off, muscle will not. A fat horse is liable to indigestion, sun-stroke, cold, flatulence (colic), and ever so many other ills, which a horse in condition is not only free from, but if properly fed, and cleaned, and worked, is not liable to get. It is usually poor economy to reduce either food or exercise.

Connecticut Farming.

I took a run up into Litchfield Co., Connecticut, a few days ago. It is always a pleasure, though an aggravation, to be whirled by rail through a well-tilled country. One gets a series of dissolving views of the farming—I wish they could be photographed. The waste lands held by speculators near the city soon gave place to land occupied by lawns and pastures, and the surroundings of the country places of business men and gentlemen from town. Then came the farms—corn, cabbage and onion fields, alternating or more or less mingling with the villas. The onion fields are a marvel of cleanly culture. Clean cultivation has involved much labor this year. Weeds have sprung up and grown on farms which are usually nearly free from them. I see every day cornfields, which by reason of the wet season, have grown more weeds than corn; in fact, some in which the corn has been choked out. Not so among the onion raisers; even the corn and potato fields were clean. On some of the fields the onions still lay in windrows, but where they were harvested the land had been smoothed off, leveled and rolled flat or plowed in ridges, and so left for the winter. Then we came into the proper milk district, where the pastures are not over-stocked and the cows were making a business of eating grass, with good roomy barns behind them, not taking exercise for a few hours, when let out of the swill-milk stables, or the sheds where brewer's grains are their chief food. And so gradually we are whirled away where real country scenes alternate with busy towns and manufacturing villages, a few dignified with the name of city—absurdly enough in some cases.

The farmers are happy in having markets at their very doors for nearly all they can raise upon their land, and their surplus is greedily sought after for the great city a hundred miles, more or less, away.

Ox Teams.

Here we come to the region of ox teams. At a little Litchfield County Fair, a few days ago, the combined "string" numbered two hundred and thirty yokes. Almost all high-grade Devons, deep red with broad white horns, broad loins, deep bodies, a beautiful sight which I was just too late to see. I greatly enjoy fine, well-broken cattle, and as part of my errand was to buy a pair, I saw several noble teams, all Devons, and so well broken and gentle that I think they could have been driven with a corn stalk, an umbrella, or a rye straw as well as with a ten-foot "gad." I found what I wanted, and was even more successful than I had hoped to be. I am a great admirer of Devon oxen, and think them the best in the world for ordinary use. True, the cross of Devon and Shorthorn are much heavier, proportionately slower and more powerful, and are very handsome; the Herefords and their grades and crosses are magnificent, but also heavier than Devons and have slower gaits and much less spirit and vivacity.

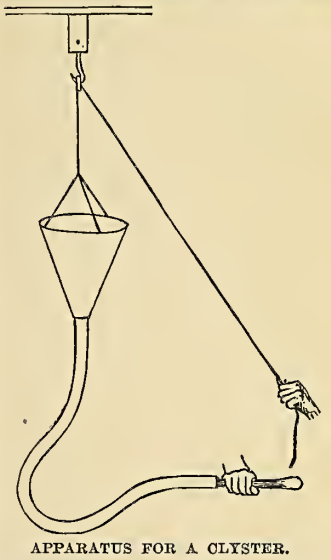
On my way home I fell in with an old friend, a farmer of West Hartford, and an old Jersey breeder. As I carried a long ox-whip our talk naturally was about oxen of various kinds.

Jersey Oxen.

My friend praised Jersey oxen to the skies. He has used them for years, and finds them docile, easy to match, strong for their weight, heavy enough, good workers and handlers, and quick feeders as beef cattle. I have occasionally seen a pair and cannot dispute him. We shall probably soon see more Jersey oxen, for the ten-dollar fee imposed by the Jersey Cattle Club for the registration of bulls, will not only cause considerable full-blooded Jersey veal and beef to come to market, but Jersey oxen will not be rare.

Useful in Every Stable.

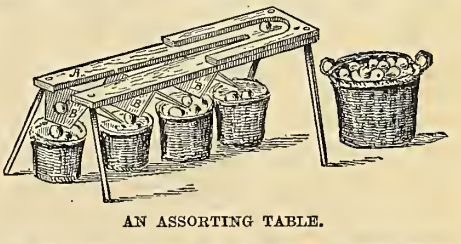
Every farmer should be able to administer a clyster easily and promptly. The old-fashioned syringe is objectionable on many accounts. The best apparatus is a tin pipe a foot long, with a knob of solder on one end, to prevent injury to the delicate membrane. This is attached to a rubber tube three or four feet long, which fits upon the spout of a large tin funnel. The water or other fluid is poured into the funnel, and when it is held up high the pressure is sufficient to cause the discharge of its contents. It is rather awkward to hold the funnel up, and there is danger of its contents being wasted. This may be remedied by punching three holes in the edge of the funnel, putting in wire rings, tying strings to these, to unite in a single cord, which passes over a hook, secured into a beam overhead, as shown in the engraving. By drawing the cord, the funnel may be raised or lowered at will. It is well for farmers to bear in mind the fact, that probably more horses die of flatulent colic than of any other disease, and that the prompt and free use of water, given as an injection, is, we believe, a certain cure. Three or four quarts of water is usually sufficient to give free vent to the imprisoned wind.



APPARATUS FOR A CLYSTER.

A Convenient Assorting Table.

An ingenious home-made apparatus, for assorting oranges, apples and other round fruit, into lots of uniform size, is shown in the engraving. It consists of a board, *a*, four feet long and eight inches wide, with a slit sawed nearly the whole length, four inches wide at the lower end, and narrowing to two inches at the upper end. This assorting device is provided with four legs as supports, two being short in order to give it the proper inclination. The fruit to be assorted is placed on the board at the upper end, and rolls downward until the opening is large enough to allow it to pass into the basket beneath. To obtain a particular size, dividing boards, *b*, *b*, are placed at any point desired in the slit. Two, three, four or more sizes may be obtained as readily as one. The accuracy and rapidity with which assorting is done with this table is surprising. An inclined table, with ledges on the sides, is convenient in preparing gooseberries, cranberries, etc., for market. The fruit being poured upon the upper end of the table, will roll down, leaving sticks, leaves, etc., behind.



AN ASSORTING TABLE.

Wheat Rust and Mildew.

Rusts and mildews enter grain fields like thieves by night, and rob the farmer of his bountiful harvest. There is much mystery connected with the coming of these destroyers, and but little is generally known of them, excepting their ruinous effects. In figure 1 is seen a portion of a wheat leaf, three times enlarged, showing the rust in small oval spots scattered over the surface. Each one of these spots is a ruptured place in the epidermis or skin of the leaf. If a young spot, just forming, is cut with a sharp razor, and a thin slice placed under the compound microscope, we will have in view, when magnified two hundred times, what is seen in figure 2. This engraving shows one side or half of the spot. The circles at *a* show the ordinary cells, making up the substance of the leaf, and from which the skin, *b*, has been torn away by the growth of a multitude of threads and oval bodies, between them. These fine filaments are the roots, so to speak, of a minute plant, and the bright oval bodies are the "seeds." The rust plant belongs to the order of vegetation known as fungi, the more conspicuous members of which are the mushroom and toad-stools. As the wheat rust continues to grow, the skin over the upraised spots is burst off, and the multitudes of oval bodies, called spores, are exposed to view. They are of a bright, reddish orange color, and produce the characteristic appearance of the surface of rusty wheat plants. The color is not unlike that of iron rust, and the name, therefore, is well chosen. The

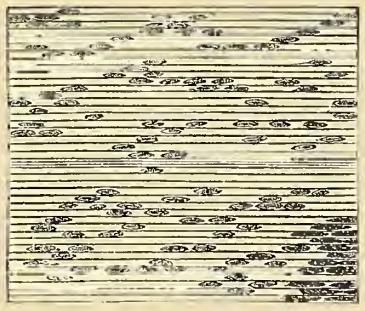


Fig. 1.—SURFACE OF WHEAT LEAF, ENLARGED.

bright spores are easily detached from the minute stalks that bear them. This fact is well-known by the farmer, whose clothing is quickly coated with "rust," by simply brushing against the infested grain. These spores germinate in a few hours, when provided with suitable conditions of warmth and moisture. Figure 3 shows two of these spores, *a*, *a*, that have fallen upon the surface of a young wheat leaf, the whole being magnified four hundred times. The spores germinate at two points on opposite sides, and the filaments grow irregularly over the surface, *b*, until a breathing pore, *c*, is found in the skin of the leaf, when they pass into the interior of the leaf. After an entrance is effected the filaments branch, and rapidly increase in length and number, at the expense of the elaborated juices of the wheat plant, and in a few days new rust spots are produced. In this manner several generations of the rust plant succeed each other. This pest is most destructive where it appears in abundance shortly after the wheat has blossomed. If a number of warm rains follow in quick succession, the growth of the rust is favored, and the grain fails to fill. The substance of the wheat plant has been stolen, and employed in the formation of countless yellow spores of the fungus.

Later in the season a second form of spore is formed in the rust spots. Figure 4 is a magnified view of a rust-spot section, corresponding with figure 2. The spores are seen to be of a different shape, being double and very dark. These are called the winter spores, and do not quickly germinate like the rust (or uredo) spores. These dark spores, when crowded in the ruptured pustules, produce the "weather stains" so frequently seen upon wheat straw, and especially the stubble. In this state, sometimes called "brown mildew," the fungus (*Puccinia graminis*), causing so much destruction to the wheat crop, passes the winter in comparative inactivity. In early spring, the dark, microscopic spores germinate, and should the weather be favorable, the story of destruction is repeated. In one of its forms, this fungus may infest the barberry, producing countless orange spots, called "cluster cups." Recent investigations show that this form may be omitted when the barberry is not within reach. With such a pest as

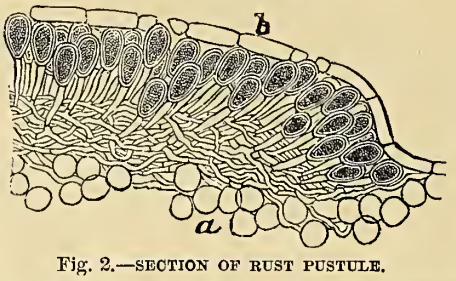


Fig. 2.—SECTION OF RUST PUSTULE.

the rust plant, which does most of its destructive work before it becomes manifest, remedial measures of any kind are not easily applied.

Seth Green—His Ways and Works.

The readers of the *American Agriculturist* need not be told who Seth Green is. His fame as a master of the rod and gun, and as an enthusiastic, practical pisciculturist, is world-wide. He is a keen observer of nature in all her moods; but is especially noted for his intimate acquaintance with fishes and birds, and their habits, and the profound knowledge he possesses of the vegetable and animal life upon which they feed. Mr. Green is gifted with remarkable conversational powers, is clear and luminous in statement, and no one can listen to him without rare entertainment and instruction. He is untiring in his researches after knowledge, and has a marvellous aptitude for combining and controlling the minor and insignificant forces of nature, so that they will work together for the advantage of man. The writer was seated with him in his garden in Rochester, N. Y., one afternoon last summer, the immediate topic of discussion being the appearance of alewives in Lake Ontario, where they had been mistaken for menhaden, and had even been supposed to be a variation in the shad that had been liberated by him in the streams running into that lake. Mr. Green explained that the alewives, a salt water family allied to the shad, had reached Lake Ontario by the canals. Thirty years ago he found them in one of the small lakes in this State, and later in Cayuga, Seneca, and Keuka lakes. He first found them in Lake Ontario in 1872. From this subject, episodes were made to the ciscos of Lake Geneva, Wisconsin, which appear in countless numbers in June, with the "sand flies;" to the rise and progress of eels, which he, with other naturalists, regards as a salt water product, a great traveller, and an emigrant from the ocean to the waters of the interior;

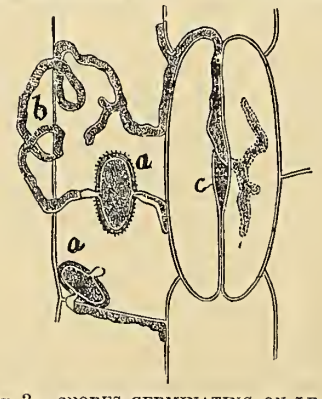


Fig. 3.—SPORES GERMINATING ON LEAF.

to the curious swarms of "shad" flies, or "May" flies on the St. Lawrence at Ogdensburg, and in the streams of Great Britain; and to the "sand" flies whose sudden incursion into Chicago on the last Fourth of July, was described in the *American Agriculturist* for October. After these matters had been duly discussed, Mr. Green strolled through his garden and pointed out some examples of his special adaptations. Among his potato plants he had erected small platforms, on which, as he said, he had "taught the sparrows to eat potato bugs." First, he scattered crumbs on the platforms, on which the sparrows fed. Thence he invited them to the potato plants by scattering the crumbs on them. Then the sparrows found the potato bugs, and ate them, although we presume sparingly; since those pests are not acceptable as food. The sparrows are regarded as pests by many farmers and gardeners, and doubtless this was a case of "dog eating dog." Among his melon vines, Mr. Green had laid boards. Lifting up those boards, multitudes of toads were found concealed there by day. At night they come out and feed upon the insects that infest the melon vines. It was a simple device, and one that succeeded admirably. The toads were harnessed to his scheme of gardening, and worked faithfully and well. There is a hint in this to other growers of melons. Standing upright by an apple tree, was a tomato vine. A little weight was fastened to the tomato stalk, near the top, and the string attached was thrown over a low limb of the tree. As the plant grew, the weight dropped towards the ground, and when it grew higher, the weight was carried over a higher limb. So the work went on and the tomato vine stood up erect and bore its blossoms aloft. The fruit followed in good time. Mr. Green found thrifty potato plants growing out of a refuse heap of coal ashes in the back part of the garden, dumped there by the former occupant of the



Fig. 4.—WINTER SPORES FORMING.

house. This at once suggested coal ashes as a top dressing in his potato patch. He accepted the suggestion made by nature, and his plants showed no ill effects from a dressing which is not regarded as a means of fertilization, and which indeed is generally held to be worthless. How that experiment turned out we cannot say. It is probable that wood ashes and other vivifying agencies were mingled to a greater or less extent with the coal ashes. Mr. Green is a born experimenter, and is not slow to get at the bottom facts in the matters that attract his attention. He is not disposed to adopt the speculations or conclusions of others, except so far as they are based upon proved conditions. He has reduced to practical use, and given to the world, the results of long years of study and observation, and the world is better thereby. He is in the full vigor of industrious life, and will yet accomplish much more in the field of his special pursuits. The man who has worked so successfully for those who love the rod and gun, may be able to instruct those who sometimes despair of the shovel and the hoe.

ASHES AND MANURE.—L. H. Casselman, Carroll County, Ohio, asks: "As it is said to injure manure to mix wood ashes with it, would the effect of coal ashes be the same? How would they answer in place of dry earth, to spread under the roosts in a poultry house? How would saw-dust answer?"—Coal ashes contains only the wood ashes resulting from the wood or charcoal used for kindling, and the proportion is not ordinarily large enough to cause appreciable loss of the manure. The convenience of the coal ashes and the desirability of getting rid of them in some useful manner, make it desirable to dispose of them in the poultry house. Under the roosts ashes of any kind would be a better absorbent than saw-dust, and almost as good as ordinary dry earth.

Vegetable Soap and Horse-hair.

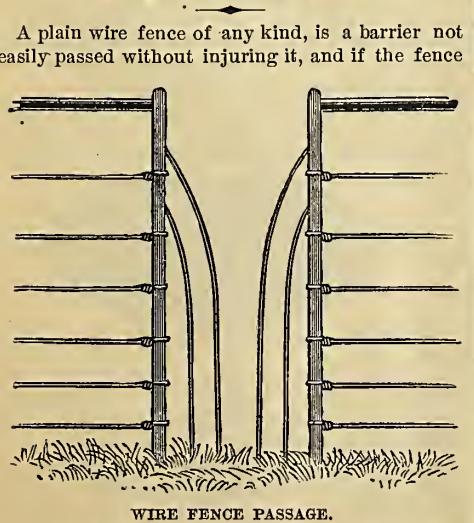
A plant long known to the Spanish residents of California as "Amole," grows in various parts of that State. At Monterey it is found in the pine-clad hills not far from the city, and it extends up the Sierra Nevada to near the snow line. The leaves of the plant form a cluster which spreads flat upon the ground; they are about a foot long and have wavy margins. From the centre of the cluster of leaves arises the flower stalk, some three to five feet high, according to the nature of the soil; its many branches bear small, purple-veined white flowers which, together, form a loose panicle. Though the flowers are numerous, but few are open at once, as the blooming commences at the base of the branches and gradually progresses upwards; they bloom only in the afternoon. The flowers have the general structure of those of the Lily family, to which the plant belongs; its botanical name is *Chlorogalum pomeridianum*. The engraving shows a portion of the flower cluster, behind which the leaves and bulb are indicated in outline. The bulb, which varies in diameter from an inch to four inches, is surrounded by a thick covering of brown hairs, which resemble the fibres on a cocoanut. This hair, which is eight or ten inches long, is much used in upholstering under the name of "Eureka Hair." To prepare it for use, the hair is first cleaned by a picker; after it has been steamed and dried several times, it is curled in the same manner as horse-hair, *i. e.*, by twisting it into a rope; this gives it a curl which is retained after the rope is picked apart. When dyed black this hair closely resembles horse-hair, and is used for the same purposes as that material. The finest hair grows on the high Sierras, that from near the coast being too coarse for the upholsterers. The bulb itself is used for the same purposes as soap. The Indians were acquainted with this use of the Amole; it was adopted by the Spanish settlers, and their descendants continue to employ it at the present time. In washing, the clothes are rubbed with the bulb just as if it were a piece of soap, and like that it produces a thick lather. Two other species of *Chlorogalum* are found in the State, the bulbs of which possess saponaceous properties, but are destitute of the hairy covering of the true Amole, or soap-root. It is said that the gathering of Amole gives employment to between one and two hundred persons, and that the Eureka hair exported in the Centennial year amounted to seven hundred tons.



A SOAP AND HAIR PLANT (*Chlorogalum pomeridianum*).

Passages in Wire Fences.

A plain wire fence of any kind, is a barrier not easily passed without injuring it, and if the fence



WIRE FENCE PASSAGE.

be one of barbed wire, it is a problem to pass it without injury to one's self. There must generally be to each lot a gate large enough for a team and wagon, but in a boundary fence, one is often obliged to go a long distance before finding a gate. In England, the need of a way in wire fences for foot-passengers, that should answer for such fences as a stile serves for a hedge, has led to the invention of various devices, one of which is shown in the engraving. This is called "Birkwood's Biped Pass," and, simple as it appears, it is patented in England. We give the "Pass," rather in the way of suggestion to those who would construct something of the kind, than as something to be copied. If any of our readers have made use of any contrivances to afford passes in wire fences, we trust they will favor us with sketches of them.

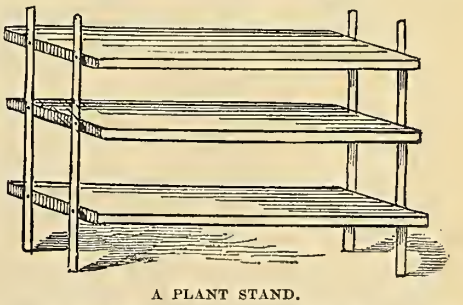
Wheat and Meat.—An Actual Conversation.

Late last September we were in the village of Spencerport, N. Y., situated on the Erie Canal and the N. Y. Central and Hudson River R. R. "What are you paying for wheat?" we asked one of the largest dealers in farm produce.—"We have been paying eighty-five to ninety cents for dry wheat; now we are paying from seventy-five to eighty cents—but it must be A 1 wheat, and dry enough to grind to bring eighty cents. The wheat we have sent to New York was graded soft, and of course we have lost money, and it makes us cautious."—"Do you ship by canal?"—"No, we send by rail. The wheat is too soft and the weather too warm to ship in boats. Millers want wheat, and there is but little coming in. Farmers are busy digging potatoes, and there is as yet little doing in wheat."—"What are you paying for potatoes?"—"That depends on the quality. Potatoes are very scabby this year. We are paying thirty-five cents per bushel for fair to good potatoes, and farmers are drawing them in quite freely."—"Are you taking in any apples?"—"Oh, yes," he said with a smile, "we are paying seventy-five cents a barrel for small barrels, and one dollar for flour barrel size. That is the situation to-day throughout this section."—"That is for early apples," we said, "what shall you pay for winter fruit?"—"It is too early to answer this question with the late kinds of apples, but there will be the same difference in the price between the large and small barrels."

We stepped into a butcher's shop. There was a nice fresh ham on the block, and the butcher was cutting off a couple of steaks for a customer. "What are you paying for pork?"—"I paid seven and a half cents for this, and I have some coming in to-morrow at eight cents per pound. It is more than it is worth, but I paid it because I had to have it, and could not get it for less."—"What sized pigs do you prefer?"—"About two hundred pounds; and for this reason, I cut up what my customers order from day to day for fresh pork, and put down the parts that are not wanted, and in ten days I have fine 'pickled pork,' which, at this season, sells better than regular salt pork. Of course the best fresh pork is from pigs weighing about one hundred pounds, but it is rare that we can get any pigs of this size that are fat enough." The consumption of fresh meat among farmers, he said, was far larger than formerly, especially beef. Farmers do not like mutton. He bought nearly all his beef in Buffalo. Sheep and lambs, and calves, and poultry, and pigs, he got from the farmers in the neighborhood. When we came back, another produce dealer met us and remarked, "everything is cheap except meat. I have to pay fourteen to fifteen cents per pound for beefsteak. It is too high." A long freight train went past on the railroad, loaded with cattle, sheep, and pigs. This is a sight so common, that we take no notice of it. But several cars were loaded with live poultry, on their way to New York and Boston. This is something new. A few miles from the village we passed the farm of Mr. Scranton. He and two men were digging Beauty of Hebron potatoes with four tine forks, not hooks. The potatoes were sorted and barrelled in the field. He thought potatoes paid better than wheat, and the late varieties better than the early sorts. Farmers were everywhere busy at work. Stone-fences were being built, houses and barns reshingled, repaired and painted, the roads were in excellent condition, and everything indicated a thrifty, energetic, and prosperous community. The low price of grain, however, must have a depressing effect somewhere. True, other things are cheap. "Everything is low except meat," expresses the situation elsewhere, as well as at Spencerport, and the conclusion is inevitable. Farmers must raise more meat. J. H.

Simple Home-Made Plant Stand.

Mr. L. B. Corey, Suffolk Co, N. Y., sends us a description of a plant stand, made in two hours at a nominal cost. Four pieces of half-inch iron rod (in this case part of an old lightning rod), had holes punched through them at proper hights, in which



A PLANT STAND.

screws two inches long were inserted into the ends of inch boards, cut to the desired length and width for shelves. The iron rods served as posts, and the whole was firm and durable, and quite pretty. As many shelves may be used as desired, or the hight of the plants will permit. The stands would be improved by staining the shelves.

Shall the Walks be Straight or Curved?

If one proposes to improve his place, whether the improvement consists merely in "fixing up the front yard," or in beautifying a large estate, the plan should be well considered. Make a sketch or plan of the ground as it now is, and then mark on it the proposed alterations and improvements. The plan may be on smooth, brown paper, which

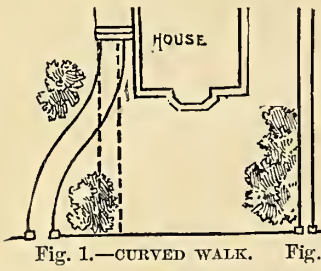


Fig. 1.—CURVED WALK.

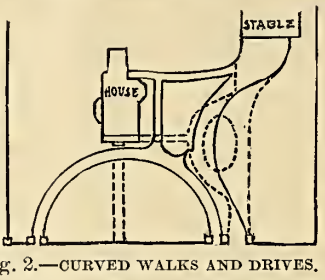
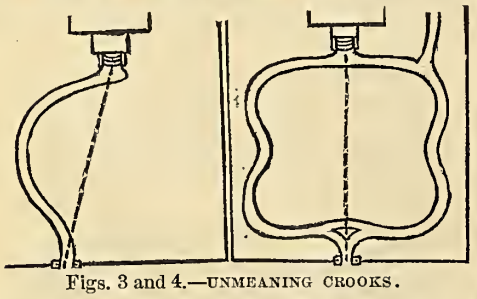


Fig. 2.—CURVED WALKS AND DRIVES.

can be fastened to a planed board. Draw to a scale, which should be large enough to show all the objects distinctly. It will add greatly to the interest of the work, to make the plan a matter of family consultation, and encourage all, young and old, to offer suggestions as to details. It is well to recollect the Irish tailor, who, when ridiculed for the great amount of chalking he did on his cloth before cutting, replied: "Shure, and chalk is not shears." Changes are readily made upon the plan, but when the plan is carried out on the ground, alterations are difficult and expensive. In making a plan, the question will come up as to a walk or road: "Shall it be straight or curved?" The answer to this is often of more importance with a small area than a large one. A small plat, should be so treated as to make it appear as large as possible. In his volume which we shall publish in a few days, Mr. Elias A. Long says of figures 1 and 2: "When the door of the house is twenty or more feet from the entrance gate, curves may usually be introduced by having the gate not directly in front of the door, but a little to one side. Such an arrangement tends to keep the area in front of the house larger, when the walk is set to one side; as a result, the house shows to better advantage, than if the main front plat were kept smaller by a straight walk encroaching upon it. The house, in figure 1, it is at once seen, has a finer setting with a curved approach, than if the part in front of it were to be narrowed by a straight walk, as shown by the dotted lines. This principle is also illustrated in figure 2, both in walks and carriage-drives. Although here, by making curved walks, there is one more leading to the house than if they were straight; still with the foreground thus arranged, the buildings are seen to much better advantage over the stretch of lawn, embellished with trees, shrubs, and flowers (omitted in the engraving), than if the scene were cut up by the hard lines of a straight walk. The general improvement in the appearance of the grounds is also much better, for instead of increasing the angular out-



Figs. 3 and 4.—UNMEANING CROOKS.

lines—strong enough already in the buildings and boundaries—by making the walks straight, we curve them gracefully, and thus induce variety in the lines. The curves are brought in such a way, that we secure that most desirable of garden qualities, breadth just where it is most needed, namely: in the foreground of the main building. This simple point is one that accounts for much of that indescribable difference in places, which makes some appear finer than others, with the use of about the same advantages and materials in both."

Before we had competent landscape architects, ignorant gardeners from the old country pretended to a knowledge of the art. They were unfortunately sometimes intrusted with the laying-out of large places, and the face of nature has been sadly disfigured by their efforts. Having seen walks and drives at home, which were properly laid out with a graceful sweeping curve, they evidently thought that the art of the designer consisted in making the walks curved, and acting on the principle, "there can not be too much of a good thing," they made some remarkable specimens in the serpentine style. Figures 3 and 4 are two illustrations of unmeaning crooks and turns, sketched by Mr. Long, from actual examples. In localities where the surroundings are formal, and large buildings present strong architectural features, curved walks would be manifestly out of keeping. Straight walks are demanded, and they may be so treated as to contribute to the ornamentation of the plat. In illustration of this view, Mr. Long gives figure 5, concerning which he writes:

"The plat is skirted in its border by a belt of trees and shrubs, and a conspicuous circular bed of evergreens occupies a central position. This simple arrangement of neat, well-kept walks, cut into the level sward, harmonizes with the strong angular

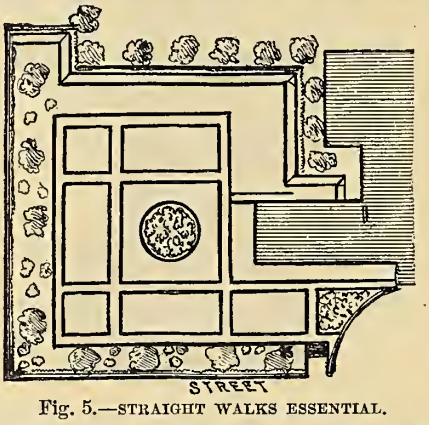


Fig. 5.—STRAIGHT WALKS ESSENTIAL.

features that exist in the surroundings—which are, it may be said, too strong to be overcome in effect, by ordinary natural arrangements. In this way is found a pleasing kind of ornamentation for the place, which it would be hard to equal by any other means. It should be observed in this case, that the walks are not so prominent or so close together, but that they convey the idea of subordination to buildings, trees, grass, and streets, hence their fitness is easily accounted for. Were the square plats between the walks filled with flowers or numerous vases, etc., instead of mostly plain grass, the fine effect would be largely lacking."

NITRATE OF SODA.—A good commercial article of nitrate of soda contains fourteen and one-half per cent of nitrogen. The price is now about fifty dollars per ton. In other words, the nitrogen costs about seventeen cents per pound. It is in an active available condition, and there is probably no cheaper source of nitrogen. Market-gardeners, nurserymen, and all others who buy manure, could unquestionably use nitrate of soda to great advantage. What the market-gardener needs is rich manure. The ordinary manure obtained from city stables and elsewhere is poor in nitrogen—especially in soluble nitrogen. Five hundred pounds of nitrate of soda used in conjunction with twenty tons of manure per acre, would often produce a better crop than forty tons of manure. We have used it with decided benefit on asparagus, onions, young cabbage plants, carrots, beets, celery, etc. Nitrate of soda is very soluble, and should be applied in small doses to the growing crop. Much will be washed out of the soil by heavy rains.

A New Pecan Nut.

The Pecan-nut has been so generally regarded as a tree belonging to a warm climate, that very few persons have deemed it worth while to attempt to cultivate it in a cool one. In the absence of any very extensive experiments in raising pecan trees in our Northern States, we have but few facts to give as an encouragement to those who may desire to plant this tree extensively for either the nuts or

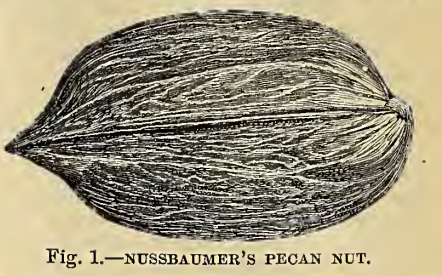


Fig. 1.—NUSSBAUMER'S PECAN NUT.

timber. It may be said, however, that because there are few bearing pecan-nut trees in our more Northern States, it should not be taken as proof that this tree is not adapted to the climate. It is quite likely that most of the seedlings raised in nurseries and by amateurs, have been from the nuts purchased in our markets, or received from friends and correspondents in the Southern States, and trees raised from these would be far more likely to be tender than those gathered from the extreme northern range of this species of hickory.

If there is anything in what is called the acclimation of plants, then seedlings raised from the pecan nuts grown in Virginia, Kentucky, and Illinois, would prove to be far more hardy and better adapted to localities, still farther North than those seedlings raised from nuts gathered in the warmer parts of the South. It may be well for those who wish to try the experiment of raising pecans in our Northern States to remember this when looking for either nuts or seedling trees for planting. Nuts of the very largest size are produced by trees along the most northern range of the pecan. In fact, the largest nut that I have as yet seen, was recently received through the kindness of my old friend and veteran pomologist, Judge Samuel Miller, of Mo. This nut is correctly represented in figure 1. Judge Miller writes me that the tree bearing this nut is growing in St. Clair County, Illinois, and has been named "Nusshaumer's Hybrid," after its discoverer. The tree is a very large one, the stem measuring some two feet in diameter at the base, and is very tall, but its hight has not been correctly ascertained. It is supposed to be a hybrid between the *Carya olivæformis* and *Carya sulcata*, but this is only conjecture. But whatever its origin, it is certainly one of the most remarkable as well as largest pecan nuts as yet discovered, and it is to be hoped that the owner or some one else will be successful in propagating it extensively, for such a noble and valuable variety should not be allowed to become extinct. The shell of this nut has a slightly undulating or rugose surface that rather sustains the view of its being a hybrid, and I am inclined to think favorably of this idea.

From the neighborhood of Mobile, Alabama, I have this season received some specimens of a very early as well as large variety of pecan, and figure

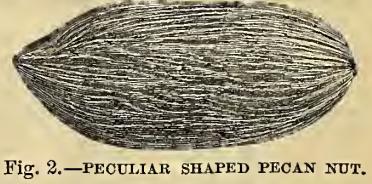


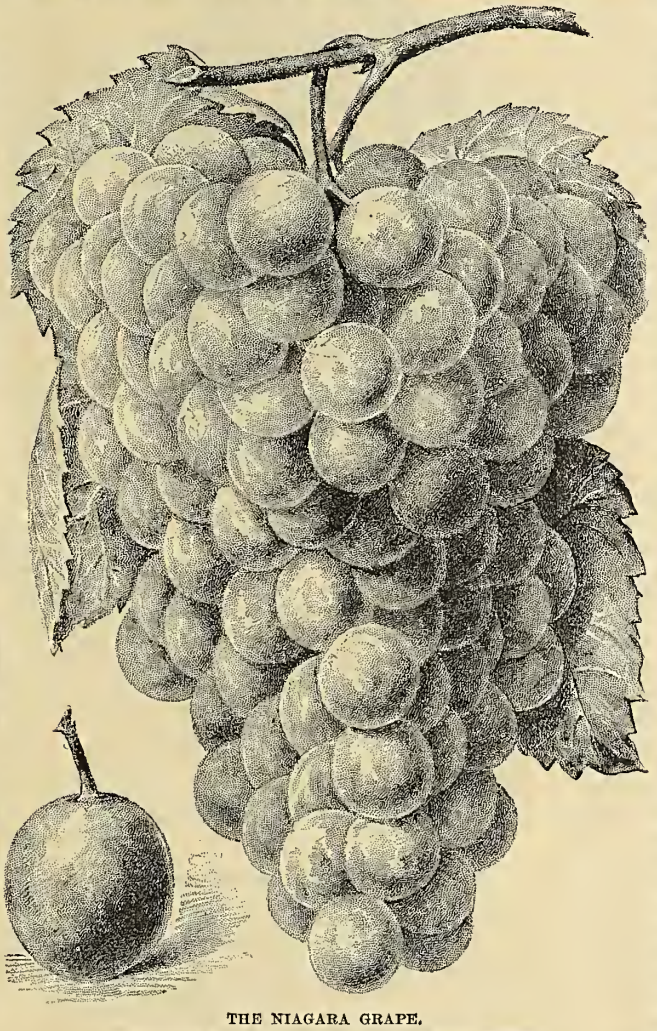
Fig. 2.—PECULIAR SHAPED PECAN NUT.

2 was made from a nut of a fair average size. This nut is not only early, but is of a peculiar shape, its greatest diameter being near the upper end, then tapering suddenly to a point. There are no doubt hundreds of very distinct varieties of pecan nuts, to be found in regions where this tree is indigenous, and it is time that the very best and largest were sought out and propagated in plantations of nut-bearing trees. A. S. FULLER.

The New White Grape—The Niagara.

White grapes meet with a more ready sale, and bring a better price in the market than black or red varieties. A white grape, possessing all the qualities which have made the Concord so popular, has long been a desideratum among grape-growers. The Martha, a seedling of the Concord, was largely planted; the advertisements told every one "you want Martha," and it for a time had a "boom," but its quality is so indifferent, that it failed of acceptance as the white compeer of the Concord. At the meeting of the American Pomological Society in 1879, at Rochester, N. Y., there was a remarkable exhibition of new white grapes; no less than four varieties were there first placed before pomologists, their owners claiming for each all the good qualities which should make it the white grape that fruit growers had so long waited for. These new varieties have been on sale for the past two or three years, but the Niagara was offered under conditions which restricted its sale, save for vineyard planting. It is now, however, offered in open market by many nurserymen, and without conditions.

The "Niagara" originated at Lockport, N. Y., being a seedling of the Concord, fertilized, as it is claimed, by the Cassady, an old white variety. The vine is said to be perfectly hardy; it has leaves shaped much like those of Hartford Prolific, being large, thick, leathery and downy. A basket of the fruit sent us by J. S. Hubbard, Chautauqua Co., N. Y., allowed us to judge of its quality, and we have had an engraving made to show its appearance. The bunch is reduced, but a single berry gives the average natural size. The clusters are medium to large, averaging half a pound in weight, though occasionally heavier, sometimes shouldered, and compact. The berry is large, equalling or exceeding the Concord, very uniform, round or slightly oval, and clings well to the cluster; color light greenish-white, often with a tinge of amber in the sun, with a thin whitish bloom; the skin is thin but strong. In quality, the fruit is, in our judgment, superior to the Concord; its freedom from unpleasant foxiness, and the tenderness and sweetness of the flesh, make it very acceptable. The Niagara ripens with Hartford Prolific, and is said to hang without shrivelling until frost. This variety has already been planted extensively, there being over two hundred acres at Brocton, N. Y., and the accounts of its prolific character, early bearing, and freedom from disease, are well authenticated. The fruit is said to keep well; that it is an excellent shipper, the specimens that were sent to us bear witness.



THE NIAGARA GRAPE.
Drawn and Engraved for the American Agriculturist.

Starting a Farm Garden.

A properly worked and manured farm garden improves every year. Starting with ordinary farm land, it is almost impossible to get it in the best and highest condition the first season. The chief reason for this is probably because, no matter how much manure we may use, it is difficult to get it thoroughly mixed with the soil. An eminent chemist, the late Professor Way, once said manure needed to be digested by the soil before it was in the right condition to be assimilated by the roots of plants. This may be somewhat fanciful, but at any rate, every gardener must have observed that raw land, even though it may be heavily manured, seldom gives the best results the first season.

To avoid disappointment the first season, therefore, we would earnestly recommend those who are about to start a new garden next spring, to commence preparation this autumn. If there is time for nothing more, remove all the rubbish and weeds and large stones. Plow it deep and well, and if the soil is dry enough to pulverize, put on the harrow and roller, and reduce it to the finest tilth.

In regard to the application of manure, much depends on the character of the soil, the condition of the manure, and the amount you can obtain now or in the spring. If you have abundance of manure, and the soil is rather heavy, plow under twenty or thirty tons per acre, eight or ten inches deep, and let it stay there. Then, either this fall or in the spring, work into the surface soil five or six inches deep, another good coat of manure—say twenty, thirty, forty, or fifty tons per acre, according to the crops you wish to set out in the ground.

Early cabbages will pay for the most liberal amount of manure. Late cabbages will get along with less, and so will sweet corn, beets, carrots, parsnips, salsify, and all the later vegetables. There is little probability, however, that you will get the land too rich. What we particularly wish to suggest is the advantage of good, deep, thorough plowing this fall, and the liberal use of manure either now or in the spring, or both. On light, sandy land it will probably be better to use the greater portion of the manure in the spring, and supplement it with phosphates and nitrate of soda.

The Cultivation of Onions.

Onion growing is a specialty in certain sections—principally on black, mucky land. The onions are grown year after year on the same land. In many localities, where onions were once largely grown, the crop has been abandoned, owing to the ravages of the onion maggot. This gives farmers in places where the crop is not extensively grown, a decided advantage. The maggots are not likely to be very troublesome for a few years. To those proposing to grow onions for the first time, we desire to offer some suggestions: Get the land ready for sowing in the fall. Plow it, harrow it, pick off the stones and rubbish, and work in all the manure you can. Act exactly as though you were going to sow the seed, but do not sow it until spring. Drill in the onion seed in the spring the first moment the land is dry enough to work. There are a dozen other little matters of more or less importance, but these points, properly observed, will do more to ensure success, than the whole dozen. As to the best land to select for sowing onions, we may say that we have had good crops on light sand, and on heavy clay, and on black muck, and on soil possessing a greater or less degree of all these characteristics. Success depends much more on the man than on the soil.

Hanging Baskets.

Hanging baskets for plants are made of different materials, and in a great variety of forms. Some are formed of wire, others of clay, and ornamented with fancy mouldings, etc. Very pretty baskets in rustic style are made by covering the outside of a wooden bowl with fantastic knots and roots; this makes a pleasing basket, but we know of none so desirable as the old style of semi-globular wire basket, when properly filled.

To fill a wire basket, first obtain some of the green moss to be found on the lower portion of the trunks of trees in almost any shady piece of woods. This is to be used as a lining to the basket, turning the green side out, and entirely covering the inside of the wire form with the moss. Before filling the basket with soil, place a handful of charcoal or gravel in the bottom, which will hold the moisture. Fill the basket with rich, loose loam, such as will not harden by frequent waterings. Plants that are peculiarly suitable for hanging baskets are quite numerous, and from them a selection may be made that will please the most exacting taste. It is a mistake to crowd too many plants into a basket, if they grow they will soon become root-bound, stunted, and look sickly. If the hanging basket be of the ordinary size, one large and choice plant placed in the centre with a few graceful vines to droop over the edges, will have a better effect when established and growing, than if it were crowded with plants at the time of filling. Hanging baskets being constantly suspended, they are exposed to draughts of air from all sides, and the soil is soon dried out. Hence careful watching is necessary in order to prevent the contents from becoming too dry. If the moss appears to be dry, take the basket down and dip it once or twice in a pail of water; this is better than sprinkling from a watering-pot. In filling hanging baskets, or vases of any kind, we invariably cover the surface of the soil with the same green moss used for lining, which, while it adds materially to the pleasing appearance of the whole, prevents the soil from drying out or becoming baked on the surface. If the surface of the soil in pots be covered with moss of this kind, especially in summer, moisture will be retained, and watering be required much less frequently.

The following is a list of the choice plants suitable for hanging baskets. Those marked thus (†) are fine for the centre. Those marked (*) have handsome foliage, and this mark (‡) indicates that the plants have flowers in addition to rich foliage:

‡ Begonia glaucophylla scandens; †oxalis; †begonia rex, very fine; *fittonia; †cuphea platycentra (cigar plant); †pandanus (screw pine); †dracæna (Young's); †neiremhergia; †centaurea gymnocarpa; ‡geraniums, Mrs. Pollock and Happy Thought; *tradescantia discolor; *peperomias; ‡gloxinias; * fancy ferns; †ageratum (John Douglass, blue); †achyranthes; ‡variegated hydrangea; *ficus Parcelli; ‡gesnerias; *variegated grasses, etc.

Trailing Plants.—‡Fuchsia microphylla; Sedum (stone crop); ‡ivy-leaved geraniums; German ivy; Indian strawberry vine; Kenilworth ivy; lycopodium; moneywort; ‡trailing blue lobelia; *cissus discolor; ‡lysimachia (moneywort); ‡tropæolums; ‡torrenia Asiatica; ‡mesembryanthemums (ice plant); ‡cohæa scandens; ‡pilogyne suavis; †lygodium scandens (climbing fern).



Notes of Fashion.

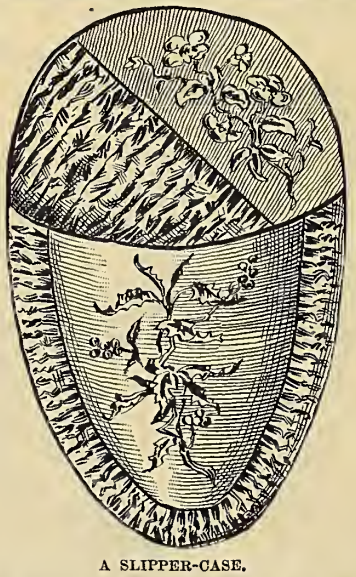
It is very easy for a lady of good taste to be in fashion this fall, for the styles are unlimited in number, and one is at liberty to choose from an almost endless variety of fabrics, such colors and shapes as suit her own individual fancy, always remembering that simplicity is the rule for home and street costumes. Many skirts are made without any puffs or drapery. Of course these are very slightly gored, if at all, and this on the front breadth only. The fullness is all thrown to the back, where it is supported by a full tournure underneath. The back breadths should be cut longer than the others. Some dresses have a basque-front, apron-draped over-skirt, with a long, plain, princess back. Others have the back breadths in two double box plaits, reaching to the bottom of the skirt. These are set on just below the waist. Drapery is not out of place, however, and none need fear to wear last year's dresses, lest they should be "out of style." For quiet kinds of trimming, cord and braid are most used, and the still favorite vest is often formed by horizontal rows of braid, fastened at the ends by small buttons, or loops of the braid. The skirt may be trimmed with rows of braid, from a quarter to half a yard deep, finished at the bottom with a narrow plaiting. A very pretty style of cord or braid trimming, consists of interlaced rings forming a chain. Embroidery is much used, but should be of the color of the material. Beaded trimmings for rich fabrics, and for dress occasions, are very popular. There are costly and elegant passementeries in jet, and it would seem as if nothing could ever take their place for trimming black silks and velvets. There are also leaves and sprays wrought in colored beads or pearls for gayer dresses. Clasps and buckles are much used at the neck and waist-line with full vests. They are of metal, in quaint designs, and not expensive.

Bonnets are seen in many shapes, large and small, but the favorite is the small, round capote. Many have one to match each dress—but this is needless. A smooth felt or velvet, in some dark, rich shade, will look well with almost any dress. A puff of velvet all around, a cluster of loops, or bunch of feathers on the top, is all the trimming necessary. They may be with or without strings. A bow under the chin, of velvet, two or three inches wide, without ends, is becoming to almost every one. This is instead of the narrow velvet, which has been, and still is worn. Hats are not chosen by ladies of middle-age. For young ladies and children they are high, tapering to the crown, and have a narrow brim. They set back on the head a little, and are faced with velvet and trimmed with a broad twist of velvet, with a mass of loops or feathers directly in front. We here give a description of a few hats. A young lady may select a brown straw or felt, lined with brown velvet, and trimmed with shaded bronze and coral pink feathers. This is to be worn with a bronze-colored suit of cloth or silk. Another is made on a frame, and has a crown of puffed gray silk, with velvet front; the silk is dotted with red chenille, and the trimming is velvet, with a steel buckle, and a gray and red aigrette on the top. A very pretty bonnet for a middle-aged lady, is of gray felt, with a puffed black velvet edge, and gray and black tips.

For misses and little girls dark blue is a favorite color, with which is blended a rich dark-red. A blue felt hat has three or four narrow blue velvet bands around it, and a cluster of loops in front, in which are two small red wings. With this is worn a dress of plain blue, with a plaid skirt of blue and red, which is also for the vest, collar, and cuffs. A gray felt hat trimmed with rich red velvet, and white wings, is very pretty. For outside, little girls wear the long, plain redingote, plainly stitched, or trimmed with braid or fur. A pointed hood, with a bright lining is often added. Good common sense seems now to be wedded with fashion, and health and comfort are considered. We have thick shoes, broad heels, warm stockings, and strong and well-made underwear for all ages. The days of dressing for show merely, are passed, and good, substantial garments, even if a year or two old, need not be laid aside. ETHEL STONE.

An Ornamental Slipper-Case.

Shape two pieces of heavy card-board, as shown in the engraving, one for the foundation being of

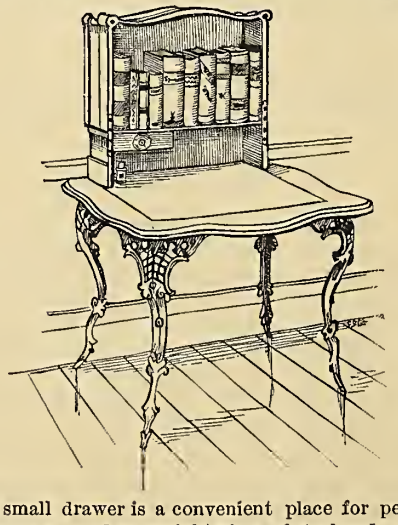


A SLIPPER-CASE.

the size required to hold the slippers, the other for the pocket, being a trifle more than half the length, and three inches wider than the first piece. The foundation is covered with felt, the part extending above the pocket being divided diagonally, and covered with contrasting colors. One half has a design in embroidery, painting, or etching in outline stitch, and the other is puffed. The pocket is similarly decorated, and is bordered with a puffing one inch and a half wide. Sew the pocket firmly to the back-board, and allow the puffing to extend over the edge. Line the case neatly with silesia.

A Cheap Home-made Secretary.

An old sewing machine frame from which the works are quickly unscrewed, is easily made to serve as a secretary and small book-case. By unhinging the cover and fastening it with two iron braces and screws to the back in an upright position, the place for books is made. To cover the holes a piece of felt may be pasted on the table part. Old frames may be purchased at the factories for a small sum, and will be found very useful with these changes.



The small drawer is a convenient place for pens, stamps, etc., and an upright piece of steel under the drawer may be sharpened to hold notes in place.

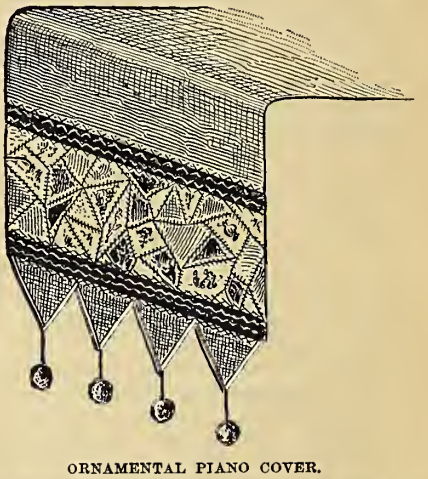
Christmas Cards Made at Home.

Beautiful Christmas cards can be made at home with little work or expense. The foundation is a cream-white card about six inches wide and four long. On the right-hand side of the card arrange a cluster of golden-rods, held in place by a narrow ribbon taken from the back of the card over the stems, then back through a second hole and tied in a bow on the back. The mottoes are painted in one color with a fine pointed brush. It is well to practise on the lettering with an extra slip before beginning on the card. The motto may be changed to suit the taste of the worker. Golden-rod dries well and keeps its color so long that it is one of the best of flowers to use for such cards. A sprig of holly is very appropriate. A small sprig of evergreen mixed with red berries is pretty. Another pleasing card can be made by using pressed ferns and pansies; the latter when pressed will keep their color well. A charming card from Scotland has a bunch of heather fastened in the center, and the word "Christmas" and date written below.

Any person who paints can make an attractive card by fringing a piece of silk five inches wide and seven long, to the depth of a quarter of an inch. On the silk is painted any design and motto that may be selected; after which it is fastened to a card a trifle larger by narrow ribbons passed through holes in the card and tied in tiny bows on the right side. Only two bows in opposite corners will be needed to secure the painted silk to the card.

A Piano Scarf.

A very suitable present for the holidays that can be made with little expense, is a scarf with crazy border, for an upright piano. Take a piece of felt eighteen inches wide and twenty-four inches longer



ORNAMENTAL PIANO COVER.

than the width of the piano. A piece of unbleached muslin eighteen inches wide and four inches deep is used for the foundation of the crazy work. On this baste small pieces of silk, satin, plush, or velvet, in any shape or size, the edges to be all carefully turned down before basting on the muslin. The edge of each piece is then embroidered with silk or floss of a contrasting shade in a variety of stitches. The pieces may be either ornamented with painting or embroidery. The greater the variety of stitches and color the prettier will be the scarf. A border of this crazy work is fastened on each end of the scarf, five inches from the edge, with a narrow black velvet ribbon, which is ornamented on each side with gold floss. The two edges are cut in points and finished with tassels or fancy balls, as shown in the engraving.

DELICIOUS LEMON SYRUP.—Cut two or three lemons in thin slices (removing the seeds) into a little saucepan with water to cover, and let them cook slowly, adding more water as the first boils away. When the slices are tender, take them out and add white sugar enough to make a syrup of the juice and water, and simmer until it thickens.

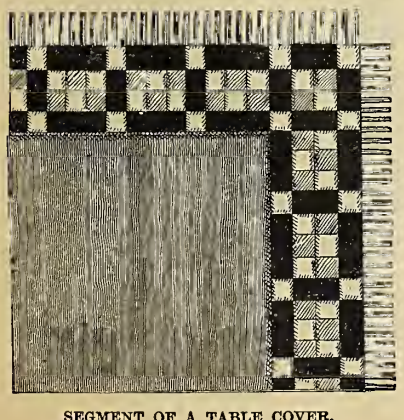
How to Dress the Christmas Tree.

The following suggestions are equally adapted to a large tree intended for a school entertainment, or a smaller tree at home. First select a tree of a suitable size, and good shape. Place it firmly in a tub, keg, or bucket, by nailing several wooden braces across the tub from side to side, close to the trunk of the tree, and filling it with sand, stones, or bricks. Cover the top of this base with moss, or bits of evergreen, and wrap a piece of bright-colored cloth around the sides of the tub or keg.

Various kinds of pretty ornaments for Christmas trees can be bought at the shops, but very good ones may be made at home for a trifle. The decorations must be showy and bright, but need not be as neatly made as if they were to undergo close inspection. Cranberries and popped corn strung on a thread, and looped from branch to branch, are quite effective. Chains made out of gold and silver paper, are used in the same way. Cut a number of ovals about two inches long, and remove the centers to make rings. Join these into a chain by slipping a narrow strip of paper, three inches long, through two rings, and gluing the ends together. Join on another ring with another strip of paper, and so on. Cut out of card-board as many stars, crescents, and "butterflies" as will be needed, and twice that number out of gold and silver paper, and paste the latter on each side of the card-board. Pass a black thread through a point of the stars and crescents, and tie in a loop, by which it is hung on the tree. Out of blue, yellow, white, and red tissue paper, make tassels by cutting the paper into tiny strips. Fasten a bunch of these to the "butterflies," by passing a cord around both. Small candles, for lighting up the tree, may be fastened in place, when the regular candle holders are not to be had, by bending a small-sized hair-pin over the branch, points up, and pressing the candle down on the pin. The work of ornamenting the tree can be done by the whole family, but the presents should be given to a person of decorative taste and skill to hang in place on the tree.

An Inexpensive Table-Cover.

A very handsome table-cover, a corner of which is represented in the engraving, can be made at a small cost. A square of some rich shade of felt



SEGMENT OF A TABLE COVER.

is used for the body. The border is formed of velvet or plush. As the pieces used are very small, discarded bonnet or dress trimmings, carefully brushed and steamed, will answer as well as new material. The darkest shade in the engraving represents black velvet, while light and dark well-blended colors should be used to fill the smaller spaces. Care should be taken in sewing the pieces together, and afterward basting them on to the felt, leaving a border of three inches on the outside. The seam should be "feathered-stitched," with gold-colored floss. The fringe upon the border is made by cutting the three inches of felt along the edge into small strips one-quarter of an inch wide. The table top should not be larger than the body of the cover, so that the border of contrasting colors, with the fringe beyond, will neatly hang in sight, and produce a handsome and pleasing effect.



A GROUP OF CHRISTMAS DECORATIONS.

Christmas Decorations.

Above we present several new designs for Christmas Decoration. The foundation for the Fan is pasteboard, made to represent an open fan, by cutting it in large points on the edge. Draw a pencil line from the center of the fan (where the bow is seen) to the upper and lower end of each point. Two shades of green are needed to give it the desired effect; sew the lighter on the left side of the points, and the darker on the right; this will make it look like an open fan. Fasten on a spray of bright red berries and a large bow of red ribbon at the bottom; they can be made large enough to fit over the top of a door.

The Parasol is also formed of pasteboard. Cut the pieces out, guided by a parasol, and overhand them together. Sew the green on with a few berries scattered over them. Use a rustic stick for the handle, and cut a hole in the top of the parasol, allowing the stick to show several inches above it; fasten it in securely and finish with a large bow of bright ribbon tied on the handle.

Pressed ferns may be used for decorating lace curtains. They are kept in place with pins which can be easily concealed, and the ferns do not look as stiff as when sewed on. Use large ferns for the center of each curtain, grouping several together, and tie with scarlet satin ribbon. Tack a few branches of pine and holly over the window.

The Work Bag, made of a hat, will be found useful and ornamental. A soft straw hat with a rolling brim will answer the purpose best. Cover the hat smoothly with silk or satin inside and out. A piece of pasteboard cut the size of the crown is covered on both sides with silk and finished on the edge with a silk cord attached to one side of the hat. Make a loop on the other side to fasten it in place in the hat, and sew a stripe of narrow ribbon on the crown, making several places for slipping in scissors and other sewing utensils. Sew a straight strip of silk on the inside of the crown to form a bag; shirr it at the top with ribbon left long by which to hang it. Palm leaf fans gilded and ornamented with holly or mistletoe look very pretty and help to decorate the home.

A Cow Bell, suitably decorated, makes a hanging ornament for the chandelier. It can be gilded or left the natural color. Hang it with a broad ribbon.

A Sachet Bag is a neat and easily made little present. Two shades of satin ribbon are cut eleven inches long and sewed together within an inch and a half of each end. Cut the ends in points and baste a piece of lace two inches wide in the top of the bag. Make an inner bag of several thicknesses of cotton sprinkled freely with Sachet powder, slip it in the ribbon bag and tie it together at the top as seen in the engraving. Place a bow of many loops and ends on the point.

The Book Marks are made of pasteboard covered neatly with satin with a spray of mistletoe and holly painted on them. Cut a round hole in the top of them, work it around in button hole stitch, and tie in a narrow satin ribbon. Those are fortunate who, in the season dried flowers, ferns, etc., have gathered a good supply, in anticipation of the demand for them at the approach of Christmas. Some of the ferns are evergreen, and these may still be collected and dried, by pressing them between papers. The Climbing, or Hartford fern (pressed), is kept for sale by many florists.

Birch Bark Panels.

Take a strip of canoe or paper birch bark and split it until the pieces are very thin; cut from one of these papery strips a little figure, of Kate Greenaway style, or any Mother Goose character, desired. Paste the figure carefully on a panel of black card-board, and with pen and ink draw the few lines necessary to designate the arms, dress,



BIRCH BARK PANEL.

etc. A few strokes with a paint brush to represent grass at the feet of the figure are all that is necessary. If the bark is hard, soak it in water before splitting. Mount the card on an easel.



The Doctor's Talks.

A long time ago I showed how some of the tricks of the so-called magicians are performed. Since then I have had several letters asking for more of these tricks. An exhibition of magic, "sleight of hand," or conjuring, as it is called, is very amusing; we see all sorts of impossible things done before our eyes, and though we know that our senses are deceived, the deception is performed so neatly, that we are at a loss to see how it is done. Most of the conjurer's tricks are performed by the aid of ingeniously contrived apparatus; the various boxes,

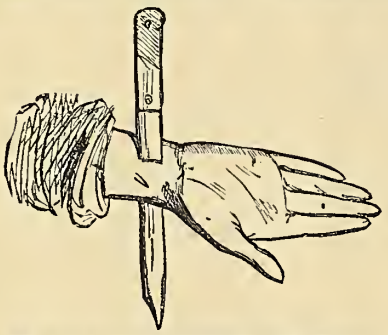


Fig. 1.—A KNIFE THROUGH THE WRIST.

cans, jars, etc., he uses in his strange art, are all made to help the illusion.

A KNIFE THROUGH THE WRIST.

The trick of passing a knife through the wrist, will show how very simple some of the deceptions are. The magician shows his arm, with a large knife passing completely through it, as in figure 1. If you were to see the knife, it would no longer be a matter of wonder. The knife is cut in two, and the parts connected by means of a curved spring, as in figure 2. By means of the spring, one-half of the knife is held above the wrist, and the other half directly below it, the knife appearing to the eye exactly as if it passed through the arm. Other



Fig. 2.—THE KNIFE.

tricks, equally surprising, are performed by the aid of devices quite as simple as those mentioned.

DRAWING LIQUID FROM THE FOREHEAD.

This trick could be performed by two persons, for the amusement of a gathering of young folks. One who undertakes to perform any trick should be perfectly cool and self-possessed, and be a good



Fig. 3.—LIQUID FROM THE FOREHEAD.

talker. This trick requires two boys, who should rehearse their parts beforehand. One boy, whom we will call George, performs the trick, and Charles acts as his assistant. George attracts the attention of the company by saying to the other: "Why Charles, what on earth makes you look so pale, what is the matter with you?"—*Charles.*—"Yes, something is the matter, I feel very badly."—*George.*—"What have you taken?"—*Charles.*—"I saw in the next room a bottle which I supposed might be some refreshment, and I—I tasted of it."—*George.*—"What! a bottle on the shelf?—Mother's hair tonic! Oh, Charles, why did you! It will at once fly to your head, and give you colly-wobbles of the brain."—*Charles.*—"Oh, what shall I do?—what shall—I—do—oo—oo."—*George.*—"Sit here, and I'll relieve you at once."

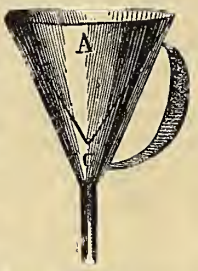


Fig. 4.—THE FUNNEL.

George goes out and returns with a big awl and a glass in one hand, and a small funnel in the other. He asks one of the company to hold the glass, makes Charles bend his head over, and at once plunges the awl into his forehead. Then asking the holder of the glass to bring it to the proper position, applies the funnel to Charles' forehead, and a quantity of dark liquid runs into the glass.—*George.*—"There, Charles, how do you feel now."—*Charles.*—"Better, much better."—*George.*—"A walk in the open air will quite restore you, come." This gives George a chance to remove his awl and funnel before the others examine them. The trick, when well done, is very puzzling, the awl appearing to enter the forehead, and the liquid to run from the wound. The awl, as seen in figure 3, is so arranged that with a slight pressure upon its blunt point, it slips into the handle. When pressed against the boy's forehead, it appears to enter the skull. The funnel, figure 4, is a double one. Such funnels are sold by dealers in magician's implements, and can be made by a tinman. A funnel is placed inside of another, with a small space between the two. Molasses and water, or other colored liquid is placed in the space between the two funnels; there is a small air hole connecting with this space, just where the handle is attached. As long as the thumb is kept over this air-hole, the liquid will remain in the space, but as soon as the hole is uncovered, and air allowed to enter, the dark liquid will run out and should be caught in the glass.

Christmas Surprises.

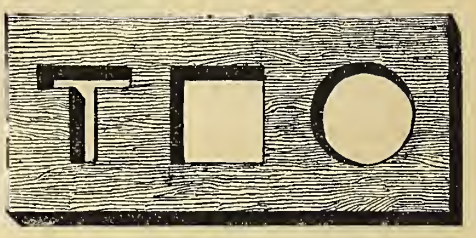
If Christmas presents are not too numerous it is a good plan to prolong the pleasure by a few unexpected surprises. In one family we know of, the gifts are hidden in out-of-the-way places, and there is a grand game of "Hide and Seek" on Christmas morning; and great fun when the articles (which are labeled) are discovered, and delivered to the rightful owners.

The Treasure-Loaf, is a novel Christmas-box for the mother of the family. To make this, take a loaf of bread well browned, and with a sharp knife make a deep incision and work the knife round until you can lift off the lower piece entire. Scrape out all the soft part within, only leaving the crust. Wrap the gift in paper, lay it in the hollow and replace the removed portion, which must be secured in place with flour paste. Then set the loaf in a hot oven for a few moments to brown the under-side, and when taken out rub the joined places with sand paper; no one will suspect from the appearance of the loaf that it has been opened, until the present is discovered.

The litle ones will appreciate the Christmas snowball. Construct a framework of whalebones, in two-halves, a yard and a half in circumference. There should be four or five strips for each half, joined together at both ends and bulging in the centre, to give a circular shape; cover these with paper and then gum on white wool or cotton. Fill the ball with the gifts, and fasten it together lightly, so that it will readily fall apart. It will cause great merriment when this "Santa Claus" snowball comes rolling in on Christmas morning, and afterwards falls into many pieces.

An Old Puzzle Improved.

The task of making a plug that will exactly fit both a round hole and a square one, is by no means a new puzzle. The addition here made to it is quite new. A thin piece of board has a circular and a square hole, and a third in the form of a letter **T**, or an incomplete cross. The puzzle is, to so shape one piece of wood, that it will neatly fill all the openings. In order that the task may be accomplished, the three holes should bear a proper proportion to one another. The sides of the square hole should be of the same length as the diameter



of the circle. The top part of the letter **T** should be the length of one side of the square, and from the upper side of the cross-piece to the lower end of the upright should be the same length. The shape of the block, or plug, may be found after a few trials. If given this plug ready made, many persons will be puzzled to make it fit all the holes.

The Rock Kangaroo.

The books often speak of the Kangaroo, as if there were but one. There is in Australia, besides the Great Kangaroo, another, named from its habits, Rock Kangaroo, and the Tree Kangaroo in New Guinea. The engraving represents the Rock Kangaroo, which is only about half the size of the common kind. It has a brush of long hairs at the



THE ROCK KANGAROO.

end of its tail, on which account the Australians often call it the Brush-tailed Kangaroo. The general color of the animal is a purplish-gray, the chin and underside of the throat are white, with

other white markings on the under parts. This animal is only found among rocks over which it runs with great agility, and climbs steep precipices with the ease of a monkey. The Rock Kangaroo hides among the crags during the day, and as it rarely ventures out save at night it is rarely met with, except by hunters, who seek it in its rocky hiding places, for the sake of its flesh, which is highly esteemed. Its fur, though long, is harsh to the touch, and is not much valued. The Tree Kangaroo is a native of New Guinea. Its fur is black, and resembles that of the black bear. This animal climbs on trees, and plays among their branches with all the agility of a squirrel, and is said to look singularly out of place in hopping about in the branches of the tall forest trees.



Each of the enclosures represents a word, all four of which, when written in the order given, one over the other, will read the same across and down.

Wing Foo's Christmas Tree.

AGNES CARR SAGE.

"Pig-tail! and almond eye! catch a Chinee on the fly!" sang, or rather roared a party of rough lads, who, armed with sticks and stones, came rushing pell-mell down the street, in pursuit of a terrified, overgrown Chinaman, who, with his shabby black gown fluttering in the cold wind, and his queer little flat hat dancing up and down like an animated pan-cake upon his head, was making wild leaps over the frosty pavement in his effort to escape; suddenly his foot struck on a glare of ice, he slipped, measured his length upon the sidewalk, and in an instant his tormentors were around him. "Now then, Charlie, we have you," cried one. "No more washee, washee for you."—"We won't have such pussy-cat heathen walking round the streets at Christmas," added another, at which the rest all laughed and shouted, "No more we won't! let's cut off his pig-tail."—At this the Mongolian's eyes began to roll wildly, and he clasped his hands tightly over the little black braid of hair, wound in a snug coil on the top of his head, while he feebly gasped, "No, no, bad Melican boys, no cuttee pick-tail." To lose his queue, is an irretrievable disgrace to a Chinaman, and without it he can never return to his own country. But these cruel young street Arabs were relentless in their sport, and after making fun of the poor laundryman to their heart's content, the one who appeared to be the leader of the band, drew forth a knife, and in spite of his victim's piteous squeaks, was about to put his threat into execution, when round the corner, and dashing into their midst, came a sturdy, bright-eyed news-boy, who, regardless of the evening papers that flew from beneath his arm, snatched the knife from the young rough's hand, exclaiming indignantly: "Aren't you ashamed of yourselves you mean cowards? to attack a poor creature like that! Why don't you take a man of your own *size*?"—"See here, Jim Connel, we won't have you spoiling our fun," spoke up the leader, "so just hand back that knife, and mind your own business."—"I won't, and you shan't hurt the John Chinaman either."—"Then look out for yourself," and stones and sticks began to whistle through the air, while the whole mob fell upon him, and it would have gone hard with him, if a policeman had not suddenly and unexpectedly appeared upon the scene. With a cry of "the cops! the cops!" the besieging party beat a hasty retreat, leaving the Chinaman rubbing his bruised head, and gazing ruefully upon his protector, who, at the last moment, had been struck by a flying missile, and fallen upon the pavement.

"Oh! he gettee hurtee! poor good Melican boy gettee hurtee," moaned the Mongolian, while the policeman laid a heavy hand on the boy's shoulder, saying roughly, but kindly, "see here, my little man, what is the matter?"—"Nothing," replied Jim sturdily, "only a stone hit my leg, it will be all right in a minute." But in attempting to rise, he turned deathly pale, and sank back, almost fainting away.—"Broken, I am afraid," remarked the policeman: "there, don't try to move, and we'll carry you home, or to the hospital, whichever you like."—"Home, home to granny's," said Jim, "but oh! my papers! they are all spoiled!" And sure enough, they were sadly torn and trampled, nothing but scraps remaining, which, however, the Chinaman was gathering up with the most assiduous care.—"Wing Foo so solly, so velly solly," he stammered in his Pigeon English, as he piled up the crumpled bits by the boy's side.—"Never mind, Charlie," said Jim, cheerfully, though he had to bite his lips hard to keep from crying. "It was a mean trick they were playing on you, and I'd do as much again."—"You're a brave chap, and a good one," said the protector of the peace, "and those young rascals ought to have six months on the 'Island' for this; but here comes the ambulance, and we'll have you home in no time."

It was a sad little procession that followed the ominous black coach to the poor but neat tenement where Jim lived with his grandmother and younger sister; for many of his boy friends had gathered round the scene of the conflict, and followed in the wake of the ambulance, Wing Foo, being chief mourner, with his yellow features expressive of the deepest despair.—"Oh! me poor b'y! me poor b'y!" wailed the old Irish grandmother, as Jim was carried in. "Sure, and its the sorry home coming ye have this day, and all for a miserable baythen, too," while pretty little Nora hid her face in her apron, and sobbed as though her heart would break. In fact, Jim was the gayest of the party, and tried hard to joke and smile, though his face was white, and he gave a long sigh of relief as they laid him on his little bed. A doctor was quickly summoned, who set the broken limb, assuring him that it would be all right in time, though he would have to lie quiet for several weeks, at which he looked very sober, and Nora exclaimed, "Oh! then he will lose all the Christmas fun!"—"I am afraid he will, unless it comes to him," said Dr. Hollis, nodding good night, and turning to descend the stairs. At the bottom he stumbled over something curled up in a heap, and a piteous voice asked, "Can medicine man make good boy all rightee again?"—"Hallo! who is this?" cried the doctor. "Ah! the Chinaman, I suppose, who caused all the trouble. Yes, Jim will be himself in time, if the bones knit well. He has been asking for you."—"Me goee see him," and ascending the stairs, Wing Foo knocked at the door, and was admitted by Nora, although rather reluctantly, while the grandmother's cap border quivered angrily. But Jim called, "come in Wing Foo, or whatever your name is, and see that I am not quite killed after all."—With cautious step the poor fellow approached the bed, whispering, "Is good boy velly sick?"—"No, but the stone knocked my Christmas in the head, and I mind that more than my leg, though old saw-bones has made it ache bad enough, dear knows, for to-morrow is Christmas eve, when they are to have the festival in the Mission School, and I wanted to see the Christmas-tree so much—but now I can't," and tears filled the boy's brown eyes as he thought of the beautiful evergreen, decked with lights and glittering balls, and of the carols he so delighted in singing.

Wing Foo's scanty English was not sufficient to express his feelings, but he nodded and grunted, and looked so wretched, that even Mrs. Connel's heart softened towards him, and she muttered under her breath, "Poor baythen, he can't help looking like a rat I suppose, and Jim did right not to let him be murthered," for she had much more of the brogue than her grandchildren, while blue-eyed Nora smiled sweetly upon him, and held a candle to light the way, as he shuffled down the dark stairs, and then he sadly wended his way to his home in Mott Street.

It was Christmas eve, cold, clear, and frosty; the streets redolent of the sweet, spicy odor of pine and hemlock, and gay with a happy, hustling throng; the holiday gladness showing in every face, while above, like a thousand Christmas tapers, the quiet stars twinkled and gleamed as though they knew it was the eve of the Nativity. But the joy of the happy Holy season seemed not to have reached the little tenement in Baxter street, although womanly Nora had done her best to make it look bright and "Christmassy," as she said, by polishing the furniture until it shone, building up a roaring fire, and hanging a bunch of holly, gay with scarlet berries, over the mantel. The grandmother's wrinkled face wore a troubled look as she prepared some toast and tea for the invalid, and Jim was restless and feverish, for all day long his busy brain had been trying to plan how they should live during the coming month, for he well knew that the loss of his earnings would be a serious matter in the little household.—"The boys will soon be gathering now in the big schoolroom," he remarked, breaking the silence that had fallen upon the trio. "I wonder if they will miss my voice in the carols."—"Of course they will," said Nora, "for did not Mr. Goodman say yours was the clearest and sweetest of them all."—"Sure ye sing like a thrush," said the old grandmother, "and it's the rare pity that ye won't be there; but as ye can't, why faith! think no more about it, me darlint, but jest ate this bit of toast and take a cup of tay. It will cheer ye up loikes." Thus urged, Jim tried to eat his supper, but his heart seemed to be in his throat, and every mouthful choked him, as he thought of the merry-making in which he should have no share, until at last, worn out with pain and disappointment, he broke down completely, and pushing away his plate, sobbed, "Oh! granny, I can't, I can't, I thought this was going to be such a lovely Christmas, and now it's the most miserable one I ever knew."—It was so strange to see light-hearted Jim in tears, that Nora cried too from sympathy, and the old lady wrung her hands, exclaiming, "Oh! whatever shall I do? whatever shall I do?" when, as though in answer to her question, there came a gentle knocking at the door, and she opened it to see standing on the threshold no other than Wing Foo, dressed in holiday attire, his funny little black eyes twinkling like two jet beads, his slit of a mouth stretched from ear to ear, and bearing in his hands a square box covered with red paper, sprinkled with Chinese hieroglyphics, in which was planted an evergreen bush, hung with the most curious medley ever gathered together on one small Christmas tree.

"Melly Klissmas!" he said, with a low bow. "Goot Melican boy save Wing Foo's pick-tail. Wing Foo bling boy Klissmas tree," and in he marched, and set his gift with much pride and ostentation on the little stand by the newsboy's couch.—"Oh! Wing Foo! how funny and how jolly of you!" cried Jim, sitting bolt upright, while smiles chased the tears from his face. Nora burst into peals of laughter, and the Mongolian nodded and grinned

with delight.—"Sure, and he behaves like a Christian if he is a haythen," said Mrs. Connel, putting on her spectacles to examine the Chinese Christmas tree, and truly, it was a strange and wonderful work of art, over which they all grew merry. Gay with scraps of bright-hued paper, and strung with festoons of red and yellow fire-crackers, here and there were hung sugar toys, Chinese moon-cakes, tiny lanterns and banners, and strangest of all, several dead mice, swinging back and forth by their slender gray tails.—"Why! Wing Foo, do you take me for a cat, that you bring me mice to eat," laughed Jim.—"Flied mousey velly nice," said the Chinaman, smacking his lips, regardless of the horrified looks of his listeners. "Chinamen eatee him every day." But besides these delicacies there was a wonderful variety of curious little figures, carved out of wood and ivory, as only the Chinese can carve, and brought from the land of tea and chop sticks by this poor child of the East, who spent his days in an underground laundry. Beneath the tree sat a funny black "Josh," with a humped back and sprawling paws; rabbit-eyed ladies promenaded the larger limbs, while the smaller twigs were hung with odd Chinese animals and birds of all shapes and descriptions; while on the very top, in place of the regulation St. Nicholas, a comical little mandarin, in full regalia, nodded his head continually, as though in grave welcome to all.

How they "Oh'd" and "Ah'd" over each and every thing, while Wing Foo was the very happiest Chinaman in all New York, and when the wonders of the tree were exhausted, drew from beneath his robe gifts for both grandmother and Nora, a small package of the choicest tea, real Orange Pekoe, and an immense fan, painted in gorgeous colors.

They were just at the hight of their merriment, and Jim had struck up one of his favorite carols in which even Wing Foo joined, singing with all his might and main, "Glather alound the Klissmas tlee," when a cheery voice asked, "May I come in?" and they looked up to see a pleasant-faced gentleman, Jim's Sunday school teacher, beaming upon them.—"Oh! yes, indeed Mr. Goodman. I am so glad to see you," cried Jim, blushing with pleasure.—"And I am glad to see you so merry, for I just heard of your mishap, and I stopped in on my way to the school, fearing to find you rather unhappy."—"So I was," said Jim, looking rather ashamed, "snivelling here like a regular baby until Wing Foo came with his presents to cheer us up. Just see the Christmas tree he has made me."—Mr. Goodman was as much pleased and interested as the children could desire, laughing heartily at the funny mice and hard moon-cakes, but declaring it to be the most original Christmas tree he had ever seen, and when he was obliged to depart, asked permission to take it with him, to show the Mission boys what a poor, ignorant Chinaman could do to express his gratitude.—"As for you, my dear lad," he said to Jim, "I consider you a young hero, and am much pleased and very proud to have one of my boys thus defend the weak and helpless, especially if they are strangers in a strange land." At which praise from his beloved teacher Jim felt repaid for all he had undergone.

The long school-room belonging to the B—— street Mission was crowded with happy, expectant boyish faces, and three hundred young voices were singing "Hallelujah! Hallelujah! in the highest!" when Mr. Goodman entered and made his way to the platform at one end. As the carol ended he addressed the school, and the subject of his discourse was, "Wing Foo's Christmas tree." He was a bright, entertaining speaker, and many a heart was stirred with a desire to do likewise, as he told in a few eloquent words of the newsboy's bravery and heroism, and how it had been rewarded. The little tree almost threw the big one into the shade, and attracted special attention from some gentlemen visitors that were present, one of whom was a connoisseur in Chinese and Japanese bric-a-brac. He begged permission to examine more closely the strange little gods and curious beasts, many of which, he said, were of the most exquisite workmanship, and having finished his inspection, turned to Mr. Goodman, saying: "The Oriental has made your young friend a really valuable gift; some museums would pay a large sum for this collection, and I will gladly give fifty dollars for it, if the boy cares to sell."—"I will certainly ask him," said Mr. Goodman, with a look of pleased surprise, and having added to the little tree several cornucopias of candy, and a beautiful little waxen Angel, that hovered caressingly over the hideous, black Josh, like the Christmas spirit of peace over a sinful world, carried it back to Baxter street, where he found Jim wide-awake, eagerly awaiting his return. He opened his eyes in amazement when told of the gentleman's offer, and gladly accepted what seemed to him a fortune, and which would make them all more than comfortable while he was confined to the house, only stipulating that he might be allowed to keep the funny nodding mandarin, which he declared was the exact image of Wing Foo.

So the Connel's Christmas was a right merry one after all, for Jim sent Nora to expend the first of his fortune in a fat turkey for dinner, while granny concocted a big, brown plum pudding, that came to the table adorned with a sprig of holly, in real old English fashion, greatly to the astonishment of Wing Foo, their only guest. The poor Chinaman was highly pleased with the invitation to dine, and although he used his knife and fork like chop-sticks, seemed to enjoy himself hugely, and when the feast was ended, drew extensively upon his small stock of English words to express his satisfaction, by rising in his chair, and declaring with many nods and genuflections, "Melican man's Klissmas splendifilous! first late! pooty good! Feast of candles better than feast o' lanterns! Wing Foo makee one Klissmas tlee ebely year."



BIG WING FOO IN DISMAY.—(*See page* 551).

Drawn and Engraved for the American Agriculturist.

Profitable Employment for Boys and Girls.

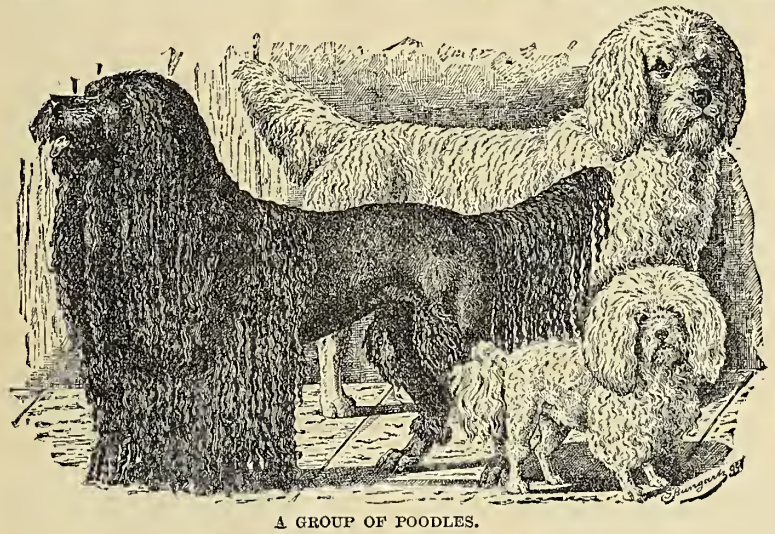
If every boy and girl who would like to earn money for themselves during the coming months, or would like to secure presents for themselves or their friends, will send their address to us on a postal card, they will immediately hear of something to their advantage. In writing us, please give your address in full, and direct to "The Doctor, *American Agriculturist*, 751 Broadway, New York City."

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Our Gallery of Dogs.—Poodles.

The Poodle is essentially a German breed of dogs—introduced into that country in the latter part of the sixteenth century, and has ever since been a growing favorite with all classes. Two kinds of dogs are known among us as Poodles, namely, the German, or true Poodle, and the French Poodle. The latter is a diminutive, useless, lap-dog, with white, silky hair, forming a copious mop about the head, neck and shoulders, the body and hind quarters usually being closely shorn. The delicate little creatures have their faces usually stained and defaced by a running from the eyes, which are prone to be weak and unattractive. These are not akin to the



A GROUP OF POODLES.

Engraved for the American Agriculturist.

German Poodles, which are in every way a superior breed of dogs. These are above medium size, of either white or black color, and of great activity, vivacity and intelligence. In fact, it is claimed for them by many, that they surpass all other breeds in intelligence, and this is in a measure corroborated by the fact, that the most remarkable trick-dogs of the shows are usually German Poodles. When we add to these qualities a certificate of the highest canine character, a depth of prompt obedience, fidelity, confidence, and affection, really remarkable, we can hardly say anything more in their favor. As to breeding, the two colors are kept separate, the white being bred pure, but in the black a patch of white on the breast is admissible; in both the nose and nails are black. Besides this distinction by color, another is found in the character of the hair, which in one breed is marked by glossy and tight curls, in the other it is woolly, not separating into distinct curls, but light and flocky, like locks of wool. If the hair of the common short-haired breed, described as forming close curls be allowed to grow, it forms ringlets, which are more curious than beautiful. The accompanying engraving shows well this interesting breed of dogs.

Mr. Joseph Harris in the Far West.*

Editorial Correspondence.

Charley and I started for the West, Thursday, Oct. 16. From Rochester to Buffalo we were on familiar ground. At Buffalo, we took the Michigan Central R. R., and turned back our watches one hour. From Buffalo to Niagara Falls we pass along the banks of the Niagara River, over a rather stiff soil, largely occupied with apple orchards, many of them in grass or clover. Some that were occupied with corn, had a healthier, larger, and more luxuriant foliage. Charley bought a novel on the cars and was reading it. I told him we were now approaching one of the wonders of the world. I have seen Niagara Falls many times, but they are always new. And in fact, the oftener you see them, and the longer you look at them, the grander they become. The cars passed rapidly over the new cantilever bridge. Formerly, in passing over the Suspension Bridge, the train moved with a slow, solemn, and cautious motion, but now we go merrily over, and stop on Canada soil. A courteous Custom House officer passes through the cars, and inspects our unchecked baggage, and we pass on, stopping a few moments where a fine view of the Falls is obtained.

Then, "all aboard," and on we go. We are soon at Welland, two hundred and thirteen miles from Detroit, and cross the Welland canal. "Put down that novel, Charley," I said, "and look at this great ship canal that connects Lake Erie with Lake Ontario." Charley looked. There was not a boat in sight, and he soon turned to his novel again. I let him read in peace. We pass through a fine farming section. Fences, crops, houses, barns, cattle and sheep, all indicate good land and good farming.

At Windsor, the cars are run upon a large steamer and carried over to Detroit. The river is brilliant with electric lights, and the whole performance, if not so common, would strike one dumb with wonder and awe. Many of the passengers quietly sleep through it all in their berths. It is an old story to them. And we too, soon turned in, and knew nothing more until we were approaching Chicago. We had to get across the city. Omnibuses were provided for passengers, and everything convenient. Our baggage was checked through, but we had a hand satchel, two guns, and a dog, to take along. We got into the omnibus, and "Dash" came in too. A man who had been smoking freely the night before, and was cross in the morning, with a glance at the rest of the passengers, growled at the dog, and said he had no business in the omnibus. Dash is a well-bred, gentlemanly, handsome dog, and he glanced up modestly at a well-dressed young lady, and she patted him on the head and spoke kindly to him. He recognized her as his protectoress, and "charged," hiding himself from the snarling man in the corner, and all was well.

Cities oppress me. I did not come West to see cities. I have seen them before—London, Paris, New York, and Chicago. They are all pretty much alike. I am aware that Chicago in some respects is ahead of the other great cities of the world. But we will not tarry.

Leaving the Garden City.

We left Chicago at 11.30 A. M., on the C. & N. W. R. R., and are soon breathing the free air of the country again. For some miles out, agriculture has a market-gardening aspect. But not as much so as I should have expected. Asparagus and beets were good; onions and turnips poor. In the Chicago market, a man wanted to sell me a barrel of very poor, dried-up red-top strap-leaf turnips for a dollar. An agricultural editor in Chicago told me, that Western farmers did not want Eastern agricultural papers, and he intimated, that the best thing I could do was to turn back, and go home again. Western people, he said, laughed at the remarks of Eastern editors, "Eastern farming was chemical, Western farming mechanical." What nonsense! Two hundred pounds of superphosphate per acre would benefit turnips on this rich-looking prairie soil as much as on my own farm, and pay equally well or better. If that is chemical farming, the market gardeners of the West will soon adopt it. The fact is, the West wants and will have the best of everything. On this very train on which we are now traveling, there is a dining car elegantly fitted up, where you can sit down at a table and comfortably and quietly eat at your leisure, as good a breakfast, dinner, and supper, as you can get at the Continental Hotel in Paris, far better than you can get at the Langham in London, and while eating it you are speeding on through a country whose agriculture is to be purely mechanical! I do not believe it. In going from Liverpool to London, we got a "basket-lunch" at Leicester, and ate it in the car. I thought this very fine. We ate our chickens at leisure, and pitched the bones through the window. But here we have venison steak, broiled chicken, mutton chop, tenderloin steak with mushrooms, potatoes, beans, cauliflower, celery, fruit, dessert, etc., etc. And "Dash" in the baggage car got as good a dinner of scraps as he could get at home. The West will have the best breeds of horses, cattle, sheep, and hogs; the best implements and machines, and she will adopt the best methods of agriculture and horticulture. Farming is now and ever will be more or less mechanical, but there is no reason why it may not be chemical also—certainly Western agriculture will be in the best sense scientific. I am not afraid of the Western farmers laughing at me, but if they do, I am good-natured enough to stand it.

Looking through the window, we see a man digging potatoes with a sort of double-mouldboard plow. On this light prairie soil, it seems to do good work. In the same field is a patch of Long Red Mangolds—not as good as such rich-looking soil would seem capable of producing. Probably the Yellow Globe would do better. Small patches of corn, and large patches of weeds are not uncommon. More yellow pumpkins are grown in the corn than with us, but they are no larger.

Chicago to Winona.

"Where are we going?" asked Charley.—"Get the map and look it up. We are going from Chicago to Winona, Minnesota, and from thence west of the Mississippi River into Dakota."

West of Harvard, Charley began to get interested in the country. He has never seen the prairies before. I suppose a Western farmer will laugh at me for calling them prairies. They were once prairies, but are prairies no longer. On the right hand, and on the left, are large fields of corn, and good corn; large pasture fields, and a hundred head of cattle in a herd. Here is a ditch, about eighteen inches wide, and two and a half feet deep; its straight sides, no wider at the top than at the bottom, show that it was dug with a ditching machine.

At Caledonia, we pass some splendid fields of red clover, and near Roscoe a fine fifty-acre field of winter wheat, with three large wheat straw-stacks in the field, showing that it was wheat after wheat. The wheat was dark-green, and hugged the ground, which is what a wheat-grower likes to see at this season. The railroad goes through a large bed of remarkably white gravel, fine, and free from earth. It must make splendid roads. The railroad uses it for ballast. Charley noticed with interest a long row of willows, near Rock River, that are used as fence posts for barbed wire. Near Beloit, Wis., ninety-eight miles from Chicago, a road-scraper was smoothing and leveling the roads. We have the same scraper in "York State," and we use it when we work out our road tax, but owing to our absurd law, it lies idle the rest of the year.—"Why so?" asked Charley.—"Because," said I, "our path-masters do not come into office until the spring, and they are obliged to have all the road-tax worked out before the first of October. If we want to draw gravel in the winter, or use the scraper at this season, we can get no legal credit for the work."—Charley knew this was one of my hobbies, and he remarked, "Tobacco seems to be largely grown in this section."—"Yes," said I, "but I suppose as a second crop."

After we left Madison, Wis., I noticed a very intelligent looking gentleman, that I thought from his quiet manner and sensible, calm face, might be a farmer. He proved to be Mr. Williams, of Baraboo, one of the oldest Shorthorn breeders in the State. We talked about farming, dairying, etc., until he reached home. As I wish to go through the country by daylight, we stopped over night at Elroy.

Saturday, Oct. 18, we left Elroy at 5 A. M. Passed through Wilton, Norwalk, and Summit, in the gray of the morning. The cows and calves lying on the frosty

* See page 532, second and third columns.

ground, seemed to be in no hurry to get up. This is a rather hilly country, well adapted for sheep and dairying. We pass a lot of small, white pigs, eating their breakfast of ears of corn in a pen. Also four wheat stacks, English hnilt, hut not thatched, and a brick farm house, English, too. From Summit to Sparta is a beautiful and well cultivated country. Buckwheat seems to be grown to a considerable extent in small patches.

Sparta.—"Twenty minutes for breakfast."

The sharp, frosty air, gave us all a good appetite. After breakfast, we pass a flock of sheep, the first I have seen since leaving Madison.

Bangor is a fine section. Considerable fall-plowing. Horses in the corn-field doing their own husking. Hop yards. More fall plowing, three horses abreast. Everything indicates thrift. More sheep—and good ones. West Salem is a fine village, with plenty of trees along the streets and roads in the vicinity; good land, and good farms. Soon we strike the hills and evergreens and ride for miles through a beautiful, picturesque country. We pass the mail car going east, and see a boy distributing matter, evidently puzzled where to put it. Finally, with an uncertain air, he throws it into a box. Our present postage laws would puzzle a Philadelphia lawyer, let alone a poor boy on a postal car going all night.

Onalaska is a pleasant village near a large river, with thousands of logs; saw a man plowing sod with four horses, two and two ahead of each other. Crooked furrows. Good clover. Prairie grass on the one hand, and high, rolling land on the other, with winter wheat.

Winona.—"Now, Charley, for your first view of the Mississippi!" We pass over it on a substantial bridge, standing on the platform. A clear, rapid, beautiful stream. Now we are in Minnesota. We have been in New York, Canada, Michigan, Illinois, Wisconsin, and are now about to see something of Minnesota. Winona is a fine, well-built, substantial, enterprising city. A lady comes on board with a bunch of dahlias in her hand, she does not live in Winona. Lives in the country—on the prairie, and likes it. Has visited East. Spent a winter in Essex Co., N. Y., and Rutland, Vt. Likes the West better. Good society; reading club; good schools; good churches, and good singing—said nothing about the preaching. Winters are cold, but if provided for, not disagreeable—in fact very pleasant.

Stockton.—A fine farm on the right hand. Shorthorn cattle and grades, good horses and colts, all in the same field. High bluffs. Three-horse sulky plow; hard work, but they go right along.

Lewiston and **Utica,** a magnificent country.

St. Charles.—Beautiful rolling land. Good clover. "Stacks of wheat," literally, but many of them poor stacks, small, and not too well built.*

Timothy seed still in shock. "Poor year for timothy seed," says a farmer by my side; "too cold in May. Good May for wheat; but timothy needs warm-growing weather early in spring. Timothy seed low this year. I took some to Chicago, got one dollar and thirty-two cents per bushel of forty-five pounds. It costs eighteen cents per bushel to get it from New Ulm, Minn., to Chicago. The price in New Ulm is $1.00 per bushel."

It turned out that my companion was a grain and seed dealer from New Ulm. "Last year," he said, "I sold timothy seed in Chicago for one dollar and twenty-two cents per bushel. In 1882 I sold it for two dollars and fifty-two and a half cents per bushel. That paid—that was all right." Pays fifteen cents per bushel for threshing. The machines do not thresh it clean. Does not know why. Much seed is left in the heads unthreshed. Does not raise red-top, or millet, or Hungarian grass seed. "I tell you," he said, as we pass a fine field of red clover, "I like to see that. Where you can raise clover, you can raise anything."

We passed a wheat stubble field as we approach Eyota, with a lot of manure drawn out in heaps. Field partly plowed. In the next field was a flock of Merino sheep, and that explains the manure. Lombardy poplar trees around the farm house and buildings; also, wind-mill. Willows for fences and screens. "Wheat," said my friend, "does best after corn—that, and new breaking. If the corn is clean, we frequently sow wheat without plowing." He referred to spring wheat. Wheat straw is burned. Uses a scraper to draw the ashes about. Do good when scattered about, but when left in a heap, kill everything but weeds.

Chester. — Three large wheat-straw stacks, mere heaps. Good hogs in pasture. Six wheat stacks unthreshed. Looked small, but my friend said they would average at least one hundred bushels to a stack. Splendid pasture, well stocked with grade Shorthorn cattle.

*This was written at the time on the cars. We saw thousands of such stacks afterwards. And I have an idea, that if I had seen these stacks last instead of first, I should have thought them about perfect. A close examination of the stacks in the West, shows them to be better than they look. In fact, they are, as a rule, admirably well calculated to shed rain, but their first appearance to us was not particularly pleasing.

Rochester, Minn.—Still a rich, rolling country—considering extent, perhaps the finest I have ever passed over. Does not look like one's preconceived ideas of the West, except in stacking wheat and burning straw. My companion from New Ulm owns several farms. Rents them, and receives one-third the crop. "All I have to do is to hold the bag, and haul the grain from the machine." He gets about two dollars per acre rent, or eight per cent on what the land would sell for, say twenty-five dollars per acre. He did not tell me, but I inferred that not half the farm was under cultivation, and for the pasture and untilled land he got nothing. "A creamery at New Ulm makes one thousand pounds of butter per day. Boston and New York men come here to buy it. Dairying pays better than anything else—than wheat."

At **Dodge Center** there was a large gathering of farm teams in a grove. At Claremont is a wind-mill for grinding wheat. Sheds covered with straw. Apple trees few and far between. "Plenty of apples," said my companion. Perhaps so, I thought, but it is evident that farmers and their families do not have them unless they buy them. I never before realized what an important matter the question as to the best varieties of fruit is in a new country.

Waseca.—A clear, beautiful lake. A large prairie. Woman plowing with three horses. She ought to have a sulky. Janesville, Kasota, St. Peter, Oshawa, and Nicollet, are all thrifty villages in a rich prairie country.

Cortland.—Beautiful rolling land. Steam thresher at work. Steamers not so common as with us. Coal dearer, oats and hay cheaper. Flock of twenty or thirty prairie chickens get up as the train passes swiftly by.

At **New Ulm** my intelligent chance acquaintance leaves me. "All this section," he said, "is settled with Germans. They were all poor, are now all rich. No corn sold, all consumed on the farm. Feed corn stalks, but hay is only three dollars and seventy-five cents per ton, delivered in the village. Soft coal is four dollars and fifty cents per ton at wholesale.

Sleepy-Eye and Springfield are thriving villages. Beautiful rolling prairie as far as the eye reaches.

Mr. Harris will continue his valuable Notes on Western Travel in succeeding numbers of the American Agriculturist.

Animal Ailments.

BLOOD SPAVIN.—A. L. Jackson, Polk Co,, Minn.—"I have a yearling colt which had its feet neglected until they were very long. A few days ago I noticed he was 'spavined' in both legs. It is said to be Blood Spavin."—In this case the spavined condition, if actually present, is due to hereditary causes. A blood spavin is strictly a distended condition of the vein, which has become enlarged from being pressed upon by the growth of the bony or bursal tumor of the hock, which latter constitutes either bone or bog spavin. No special treatment can be of avail in so young an animal. Give him good pasturage and good food at all times, with plenty of chance for liberty of action. As he grows older and stronger, nature will aid in affecting a cure, especially if proper care has been exercised. At any rate, the animal should not be subjected to labor until the limbs have become consolidated by age. No colt's foot should be tampered with unless diseased, not even when shod.

MILCH COWS CHEWING BONES.—F. H. Lauhton, Coffey Co., Kas., enquires why milch cows chew old dry bones, and other foreign substances, and what will cure them. This propensity to chew and suck bones, depends principally upon the want of the animal system for certain earthy salts, which have not been supplied by the nutriment given. It is a disease of barren, exhausted soils, the produce of such lands being wanting in just these elements. For treatment, give richer fodder from other localities, or pasture the animals on newer or better land. Improve the general health by attention to cleanliness, ventilation and sunshine. Keep the skin in the best condition by daily carding and brushing. In the meantime, improve the land by supplying it with the preparations essential for restoring its value for the purposes desired. Use bone-dust, phosphate, plaster, etc.

DISLOCATION OF TENDON OVER HOCK JOINT.—W. M. Harvard (address not given), owns a mare that has been injured by strain. "The cap of the hock joint seems to have slipped out of place. There are two swellings, one on each side of the joint of the hock. It was done about ten months ago. There seems to be considerable inflammation in it."—From the history of the case, this is an instance where the tendon has been torn from its attachments at the joint of the hock, and has been forced to one side, generally the outer. It is an accident of very rare occurrence. Nothing can be done beyond enjoining perfect rest and the application of wet bandages until all inflammation has passed. Then the animal may be put to light, slow work, and it will eventually regain its usefulness but not the natural beauty of the hock.

Chat with Readers.

Plant for a Name.—*G. M. B. Viser,* Cook Co., Ill., sends us, for a name, a little plant quite common in sandy soils in late summer, the Partridge Pea, *Cassia chamæcrista.* It is an annual, about a foot high, with compound leaves of many small leaflets, and numerous bright yellow flowers. It is related to the Sensitive Plant, and, like that, its leaves shut up when disturbed, though much more slowly.

Transplanting Trees.—*F. M. Gordon,* Stanley Co., Dakota, has a number of Seedling Maples, and Box Elders, and wishes to know the best time to transplant them.—If the climate of the locality is favorable for fall planting, the season is now too late to risk it. Plant as early in spring as the soil can be worked, and to protect them in the dry season, cover the soil over the roots with an ample mulch of some kind—straw, wild hay, leafy brush, or whatever will cover the surface, and prevent evaporation.

A Berry from Manitoba.—*M. M. Muckle,* Manitoba, sends us for a name, a native berry which is "a nice fruit for jam, and pies." It grows but sparsely in Manitoba, but is in profusion in the Northwest Territory.—The fruit in question is of the Buffalo Berry, *Shepherdia argentea,* a shrub five to ten feet high, with sharp-pointed twigs. The staminate and pistillate flowers are in separate plants. The fruit is scarlet, the size of a small pea, in dense clusters, and is sometimes cultivated for its fruit, to have which, both sexes must be planted. The fruit is much liked by all who know it.

The Uses of the Catalpas.—*R. L. Williams,* Baltimore Co., Md. There are two species of Catalpa, that called *C. speciosa,* being more hardy than *C. bignonioides* and preferable for planting in the Northern States. The wood of both is remarkably durable. We have a piece that has been exposed to the weather for seventy-five years, which is perfectly sound, and the trees will, under proper treatment, prove profitable to timber planters. For railroad ties, fence posts, and other uses where most wood speedily decays, the Catalpa timber resists the destructive influences in a remarkable manner.

Rosebugs.—If any insect has been regarded as "iron-clad" against the usual insecticides, it is the Rosebug. *B. Hathaway,* writes us from Manitoba, that he kept the insects from destroying his roses, by "a handful of Quassia chips, boiled in one or two gallons of water." He omits to state how it was applied, but we presume it was sprinkled upon the plants. Quassia has a reputation as a fly poison; if it is also fatal to the hard-shelled Rosebug, its usefulness will be increased. Quassia is kept in every drug store, and is not dear. We mentally "stick a pin" here, to try Quassia next rose-time.

Apples Blooming in September.—*G. D. Welch,* Suffolk Co, Mass., writes us that he has a crab apple tree, which, about the first of September, commenced to bloom; as fast as the fruit set, and the blossoms fell, new flowers continued to appear. He asks if this is at all common.—After a tree has perfected its leaf-buds, and fruit-buds, cool weather usually comes on, and these remain dormant until spring. If the fall is unusually warm, the buds are excited, and instead of waiting until spring, they open in autumn. This often happens with strawberries, which not only bloom, but ripen fruit in autumn. This unseasonable flowering and fruiting is at the expense of next year's crop.

"The Eucalyptus Tree."—*J. N. Cole,* Norfolk Co., Va., writes us: "The Eucalyptus tree is said to be a very fine grower, and an anti-malarial tree, or a tree which should be cultivated in a malarial country," and wishes information about the tree.—As there are about a hundred species of Eucalyptus in Australia, the term, "the Eucalyptus," is not very definite. The species for which anti-malarial properties are claimed, is *E. globulus,* the "Blue Gum tree" of Australia. Whether it has the power to avert malaria, we much doubt. Our correspondent can not readily test it, as the tree is not likely to prove hardy with him. Indeed, it is not certainly hardy at any point on the Atlantic Coast, north of Florida.

Trouble with Grapes.—*Henry Fritz,* Cambria Co., Pa., has several varieties of grapes, which did well until three years ago. Now, while the fruit is quite small, white specks appear upon the berries, and afterwards they rot and drop from the clusters.—Apparently mildew or some similar fungus causes the "white spots," which are the beginning of the trouble. Try Flowers of Sulphur, applied liberally by means of a bellows made for the purpose, and sold at the implement stores. The application should be made at the very first appearance of the white spots. If the date of their appearance is known, it will be well to apply sulphur a few days before. Use the sulphur on a hot, quiet day, and repeat weekly as long as spots appear.

Preserving Fence Posts.—Every now and then the secular papers publish something relating to agriculture, more or less absurd, and it goes the rounds, being quoted from one to another. The item, after it has gone around, is allowed to rest for a few years, when some one revives it, and the same thing is repeated. One of these items is to the effect that fence posts, of any kind of timber, will last as long as locust, if painted with boiled linseed oil, and then given a coating of pulverized charcoal. *J. W. Bailey,* Frederick Co., Va., sends us the above item, and asks if it is true.—The matter looks to us very improbable, and we do not think that posts so treated would be appreciably more durable than those without it. Charring thoroughly the portion of the posts that goes into the ground, would be far more useful, because charcoal does not easily decay.

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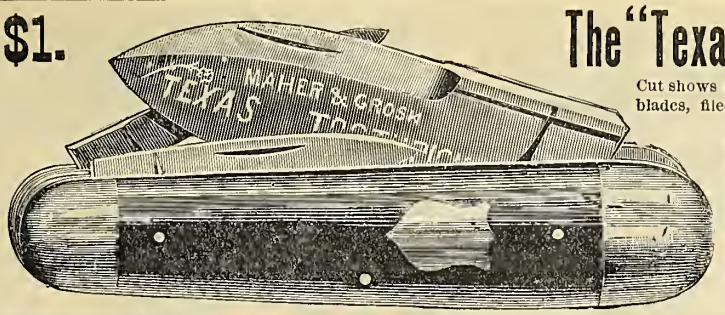
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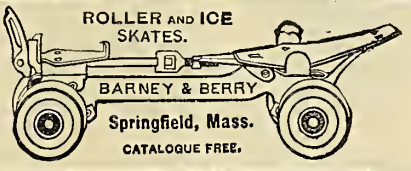
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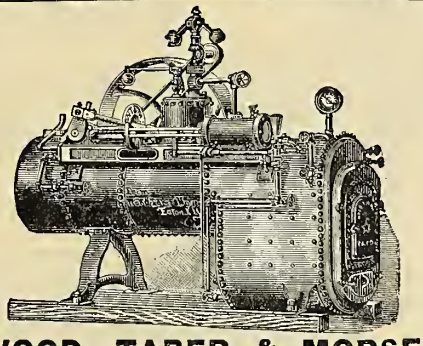
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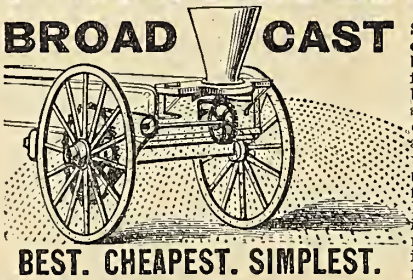
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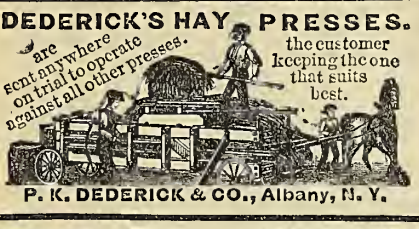
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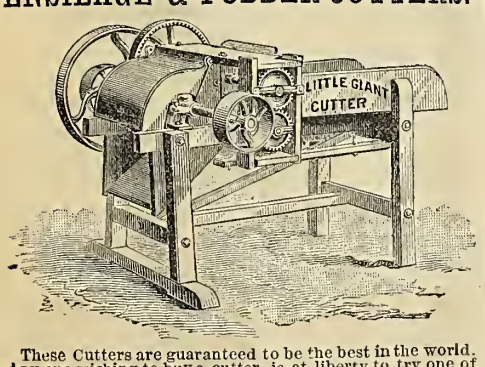
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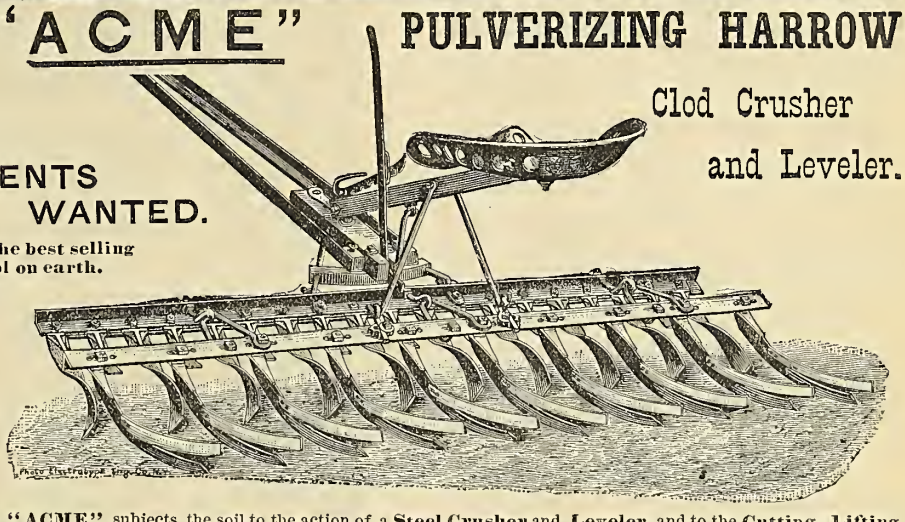
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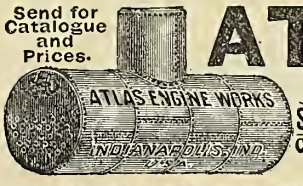
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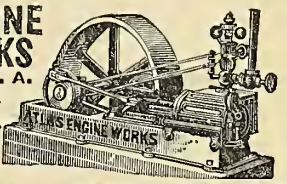
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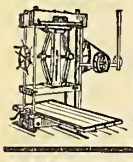
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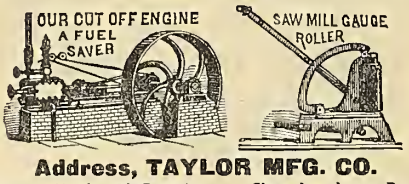
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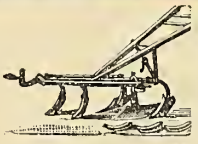
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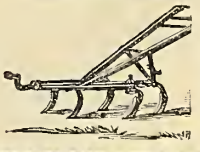


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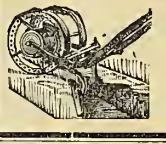
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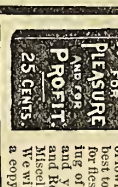
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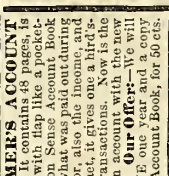
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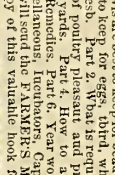
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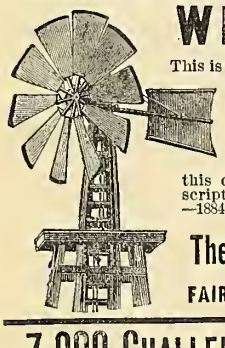
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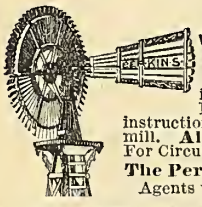
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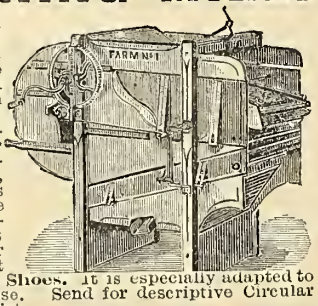
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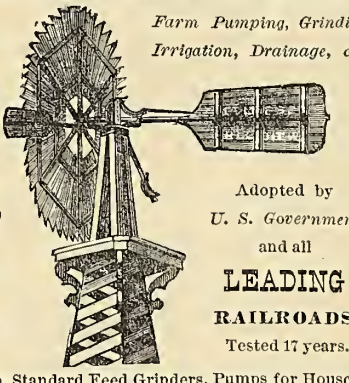


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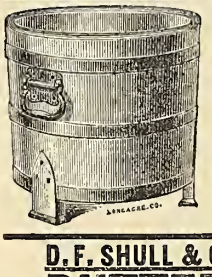
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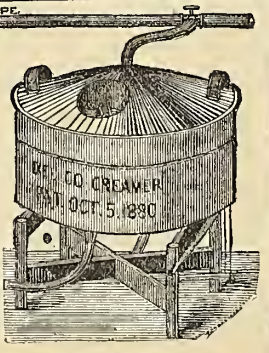
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EPPS'S COCOA.
BREAKFAST.
"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavored beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette.*
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"They Did Not Bite."

In past numbers of the *American Agriculturist*, we have exposed the lottery schemes of Mr. Martin Meyer, Jr., of "Hamburg, Germany," a persistent swindler, who continues to flood the Middle and Western States with lottery circulars, printed in the English and German languages. A subscriber, Mr. J. A., writes us from Burlington, Iowa, that a whole batch of these circulars have been sent to a College Boarding Club in that city. "The students, however, were not inclined to bite at such bait, but, on the contrary, became anxious that the public might be warned against this lottery." To every subscriber we have to say, immediately throw into the fire every document of every description received from Martin Meyer, Jr., or any other similar swindler.

The "German Method" with Eggs.

Not long ago, the "Havana Method" of preserving eggs was offered for sale. We showed that it was the old lime process, with the addition, in small quantities, of articles that could add nothing to its preservative properties. Now the "German method" is offered as a premium for subscribers by a Western paper. This sheet claims to "have finally succeeded in getting it (the German method), from Prof. Liebig, the German chemist," and professes to quote from what he says about the method. The only person who could with any propriety be called Prof. Liebig, the "German Chemist," has been dead for more than ten years. Where has the "German Method" been all this while? or who is it that this paper attempts to pass off as "the German Chemist?" The doubtful manner of its introduction throws great doubt upon the German "method."

"RECEIPTS" FOR SALE.

The same paper claims to have "obtained, after much labor and research," "receipts" for sixteen of the prominent proprietary or secret medicines of the day, such as Brandreth's Pills, Perry Davis's Pain Killer, Holloway's Ointment, etc., etc. Any one who supposes that any amount of "research" would induce the makers of the medicines to impart their formulas to others, can have very little knowledge of such matters. The so-called "receipts" can only be bogus imitations. How about that for the "German Method of preserving eggs?"

Idle Threats.

Two or three years ago, an individual residing in Washington, called upon us in person, and threatened to expend five hundred thousand dollars in prosecuting the *American Agriculturist*, unless certain statements made regarding him in our Humbug Columns, were retracted. We have not yet seen a retraction. Six months, or more ago, another individual, now at the West, anticipating that we would ferret out and expose the various schemes whereby he had absorbed the funds of widows, orphans, and others, wrote us a very threatening letter. Subsequently we were informed through a second party, that the most formidable libel suits were to be brought against us. Still later we were notified by letter, that two hundred thousand dollars was in bank, for the purpose of "squelching the *American Agriculturist*." Now comes Pecksniff with a communication to the effect, that the swindler in person has "a big rod in pickle" for us. The gentlemen who edit this Humbug Column neither throw responsibility upon others, nor make their exit through cellar doors and elevators when called upon "on business." They have neither fled from this city, nor do they intend to flee. They can always be found here at 751 Broadway; and parties who either undertake to "squelch" this concern, or to intimidate the Editors, will find in the classic language of the street, that "they have bitten off more than they can chaw."

Forcing the Growth of Hair.

Various preparations are advertised, "warranted," to produce a "flowing beard," or a "luxuriant mustache," in a given number of days, upon the smoothest face. If "C. H. D." will take our advice, he will not spend his money upon any of these nostrums, as they are quite unable to perform what they promise. The abundance or lack of beard, etc., is hereditary, and the growth cannot be forced. Neither the article named in the inquiry, nor any other, can force the hair to grow, unless there is a natural tendency in that direction. Don't waste money.

"Lettuce in Winter."

When a paper, claiming to teach farmers, publishes such nonsense as the following, it should be exposed. "It is said that heads of lettuce can be produced in winter in from twenty-four to forty-eight hours, by taking a small box filled with rich earth, in which one-third part of slaked lime has been mixed, and watering the earth with luke-warm water; then taking seed, which has been previously soaked in strong brandy twenty-four hours, and sowing in the usual way."—Whoever tries this, expecting to get heads of lettuce in the time mentioned, or in any other time, will find himself bumbugged. "Strong brandy" will wonderfully increase the size of some heads, but they are not heads of lettuce.

Patent Medicines.

The *American Agriculturist* might have added fifty thousand dollars last year to its revenue, if it had admitted Patent Medicines indiscriminately to its columns. We shall continue, however, to rigidly exclude most of them, because while endeavoring to protect our subscribers from the swindling schemes of sharpers, through exposures in these Humbug columns, we do not propose to quietly permit unscrupulous Medicine Venders to prey upon these same subscribers, through our advertising columns. Beware of the thousands of concoctions of all kinds, which claim to heal *all* manner of ills. To be sure, there is now and then a patent or proprietary article possessing purity and virtue, but the number is limited.

Don't Touch It.

Whenever you read an advertisement now going the rounds, that a certain Lotion will cure eruptions, blotches, etc., on the face, don't touch it. The way to cure eruptions is to improve the general tone of the system, and thereby purify the blood. Don't touch it.

Wonderful Publishing Schemes.

We are deluged by our subscribers with advertisements of a new publishing scheme. Some Cincinnati publishers have shown a talent amounting to genius in devising methods in the line of their business. Of late, various papers have come to us in half mourning with the heavily black-bordered advertisement of "Ocean to Ocean," making, in heavy type, the offer of "A Long Loan at Four per Cent." The publishers of "Ocean to Ocean" (whatever that may be), modestly state that they "desire to secure the names of one million subscribers" at two dollars each. It offers a premium engraving, which will be sent upon the subscriber's forwarding forty-two cents (42 cents), and agreeing "to display it in a conspicuous place in his house or office."

THE MONEY FOR THE LOANS.

The source of the money to be loaned is explained, and we have seen nothing equal to it since the fabled milkmaid counted up the proceeds from her unhatched chickens. One million subscribers at two dollars will be two million dollars. Having this number of subscribers, advertisers will willingly pay ten dollars per line for advertisements, and the yearly income from this source is put at three million six hundred and forty thousand dollars, which, added to the amount from subscriptions, easily adds up five million six hundred and forty thousand dollars. Expenses for a year are estimated at one million seven hundred and fifty thousand dollars, and this, deducted from receipts, leaves as net profits three million [illegible]

THE U. S. GOVERNMENT ENDORSES THE AMERICAN

From the Tenth Census, Vol. 8th, Just Publish[ed]

The American Agriculturist dates from 1842, and [illegible] one of the numerous periodicals of the same class which originated in all parts of the country at or about the same time, some of which are still in healthy existence, while others quickly subsided. The American Agriculturist is especially worthy of mention, because of the remarkable success that has attended the unique and untiring efforts of its proprietors to increase and extend its circulation, which at one time reached a point undoubtedly higher than was ever before attained by a journal of its class. Its contents are duplicated every month for a German edition, which also circulates widely.

Just after the above was written, the mail brought numerous papers with the advertisement of the "Chicago Globe." This advertisement is similarly black-bordered, offers another engraving for forty-two cents, and also announces a loan at four per cent. Sentence after sentence in the two advertisements, would indicate the same parentage for both, or that one is the copy of the other. In the way of figures the "Chicago Globe" is only one fourth as grand as "Ocean to Ocean;" only a quarter of a million subscribers are asked for, and on this basis the advertisements will bring in but two dollars and fifty cents a line, and the profits to be loaned, amount to only a paltry one million two hundred and sixty thousand dollars. Figures have long had a reputation for truthfulness, and we allow them to tell their own story.

Social Medical Humbug.

Medical Humbugs are not confined to the secret preparations so extravagantly advertised. It would be well if the law prevented prescribing by every one who is not a medical man. It is a popular notion that one who claims to teach some subjects, is capable of giving advice in others. We sometimes find clergymen prescribing for their parishioners, and editors going out of their sphere, if they have one, and advising their readers to use the same doses which they think they have found useful in their shattered health. Recently the promiscuous and continuous taking of small doses of quinine has been advised. Many are aware how seriously large doses of quinine affect the brain; disturbed hearing and sight, incoherent speech, and other symptoms of intoxication, being present. In small and repeated doses the "Quinine Habit" is confirmed, the brain is affected, and obliquity of moral as well as real vision may result. We have seen habitual takers of quinine who had lost the ability to distinguish right from wrong, or the difference between their own and other people's property, whose speech uttered falsehood more readily than truth, and whose whole conduct appeared to be under the influence of too much quinine. Always avoid indiscriminate dosing.

"Gossamer Garments Free!"

An advertisement, with the above attractive heading, appears in several papers, claiming to be more or less agricultural. The advertisement reads: "To any reader of this paper, who will agree to show our goods, and try to influence sales among friends, we will send, postpaid, two full-size, Ladies' Gossamer Water-proof Wearing Apparel as samples, provided you cut this out, and return with twenty-five cents to pay postage, etc."—Mrs. S. W. M., of Bergen Co., N. J., and others, having made inquiry as to the character of the "garments" thus offered, we visited the place advertised, in order to learn about them. After climbing several flights of stairs in a building on a street not far from the City Hall, we found the room occupied by the "Company." Four or five feet from the door was a board partition, at the end of which was a short counter. As we entered, two letter carriers were about leaving, an indication of considerable business by mail. The person in attendance was a very business-like lady, of whom we asked: "Are the gossamer garments advertised from this place delivered here?"—"They are only sent by mail."—"I would like to know about the sizes."—"They are just as stated in the advertisement."—"Can I see the articles?"—"They are all done up to go by mail," adding, rather impatiently, "we have no time to show goods."—It is evident that those ladies, who wish to know about this "Ladies' Gossamer Rubber Waterproof Wearing Apparel" can only obtain the information concerning them through the mail.

Cautionary Signals.

A High-Priced Pamphlet.

Mr. H. Howard, St. Louis County, Mo., wishes to caution our readers against purchasing "The Printer's Foreman." He writes us: "The work is a first-class fraud Fifteen cents would be a big price for the book (an eleven-page pamphlet)....F. C. Shepard, Evansburg, Pa., sends out the document, and takes in the two dollars and the gullable public, of which I happen to be one."—Look well into the matter before sending the two dollars.

Hog Cholera Remedies.

When the swine in a locality die from the disease known as "Hog Cholera," we do not wonder that their owners are attracted by the advertisements of those who claim to have sure cures. We can only answer inquiries as to these remedies, that so far as veterinary surgeons know, no remedy has yet been found. We can not, in the face of this declaration, advise the use of secret preparations, which claim so much against the probabilities.

Schools of Telegraphy.

Those who wish to learn the art of telegraphing, should be cautious how they choose among the various parties or schools, proposing to teach, and to guarantee situations to those who graduate from their establishments. Honest schools will give references to those who have been taught at them, and it will not be difficult to ascertain how they have dealt with others. All who demand pay in advance, should be looked upon with suspicion. Some parties have, by their conduct towards their pupils, made it necessary to advise caution.

The Monarch Lightning Saw.

We still continue to have letters both of inquiry and of complaint concerning the Monarch Lightning Saw, and we notice that extravagant advertisements still occupy a large space in agricultural journals that claim to be reputable. As a mechanical contrivance it is not plain that there can be any real gain in applying a crank motion to operating a cross-cut saw. At all events, so many have been disappointed, that we are warranted in cautioning our readers to look well into the machine before purchasing. In all such cases proper caution may avoid after disappointment, chagrin, and dissatisfaction.

Time Extended.

In offering our Family Cyclopædia as a present to every subscriber, new and old, who should renew for 1885, we have hitherto limited the time to December 1st. Owing, however, to the prolonged political excitement extending far into November, and absorbing people's minds and thoughts generally, we have concluded to extend the period during which the Cyclopædia will be presented to subscribers, new and old, until January 1st.

Don't Make a Mistake.—Only one Premium.

If readers will stop to think for a moment they will understand that we cannot present subscribers with a Cyclopædia, and at the same time allow them a large bonus in the way of premiums; that would virtually leave us nothing for the *American Agriculturist*, which in itself would be a cheap periodical at even $3.00 a year. Naturally no one would suppose it was necessary to state that the name of a subscriber who receives the Cyclopædia cannot be counted for another premium. But we so explicitly state it in several places in the Premium List. Notwithstanding this, occasionally we receive a letter worded as if the writer expected to receive the Cyclopædia, and to have his name or the names of his friends counted for premiums in addition. Our friends have but to think a moment to realize that no such thing could have been intended by us, or could possibly be granted.

Our Beautiful Illustrations—Elevating in their Character.

The *American Agriculturist* aims to make country life and country surroundings so attractive that not only will the farmer's boys not desire to exchange the old home for business centres, but that the over-crowded unhappy dwellers of our cities may be tempted to exchange their lot for the freedom and enjoyment of rural pursuits. Our beautiful illustrations which we are now bringing out with every issue of the *American Agriculturist*, go very far in this direction. We are now employing the first artistic talent, and the engravings typical of rural life, and those describing all the labor-saving contrivances, are executed in the most superior manner. The *American Agriculturist* is everywhere recognized to-day, both as the leading authority in agricultural pursuits and the first illustrated Agricultural Journal of the world.

Forward Your Subscription Now.

Every subscriber renewing for 1885, will oblige us by immediately forwarding his subscription on receiving this December number. There is a great rush of subscriptions during December, and those who send their names **now** will avoid any delay or mistake which sometimes results in this rush of subscriptions.

Profitable Employment.

We have written to about ten thousand of our friends, who have hitherto secured subscriptions for the *American Agriculturist*, offering them special inducements to secure subscriptions for 1885; to-morrow we write to three thousand more of these old friends. We should like to have ten thousand, yes, fifty thousand new friends labor for the *American Agriculturist*. Indeed, every man, woman and child, who reads this number, can secure a few subscribers with profit to themselves and to those who subscribe. Write us for particulars. We renumerate those who work for us, either in cash or premiums, as they may desire. Last year we presented a Dictionary to our subscribers, this year we present them a Cyclopædia as our Holiday present. In return we shall be pleased to acknowledge Christmas presents from our subscribers in the shape of new accessions to our great army of readers. If every present reader will send us only one new subscriber for 1885, we should have an army of new readers larger than the population of some of our individual States.

No Duplicate Numbers on Renewals.

Of course no present subscribers renewing for 1885 receive the October, November, and December numbers of this year extra, inasmuch as they already have them; these extra numbers are offered as an inducement for new subscribers. If in the haste of attending to the receipts of large numbers of subscriptions, some present subscribers in renewing receive extra numbers, will they please hand them to their friends and neighbors who they think may be induced to subscribe for the *American Agriculturist*.

The Great West.

Mr. Judd's Notes of Travel in the Far West, which have been running through the recent numbers of the *American Agriculturist*, are now supplemented by those of Mr. Joseph Harris, who has likewise been making an extended tour through regions concerning which our subscribers are always anxious to acquire information. Both of these gentlemen will, in succeeding numbers, give the results of their observations in the Far West, during the summer and autumn months.

Show Them to Your Friends.

The recipients of the Family Cyclopædia, with scarcely an exception, express themselves as surprised and delighted with the volume. Never before has such an opportunity been presented for securing such a work free, and probably never another such an opportunity will be afforded. In return for the receipt of this beautiful volume, may we ask the receivers to show this Cyclopædia to their friends and neighbors, with a view of having them avail themselves of the opportunity to procure one. We have just made arrangements for printing 50,000 more.

Exposure of Frauds and Humbugs.

Just now, as will be seen by glancing at the Humbug columns, there is an unusual number of new frauds and swindles being set afloat by rascals, who, like spiders, spin their nets from cities to catch the unwary and unsuspecting in the rural districts. The systematic exposure of these scamps will, as heretofore, constitute a prominent feature of the *American Agriculturist* during the coming year. Will all subscribers immediately forward us any circulars received by them of schemes which do not have the appearance of being honest and genuine. We will at once probe them.

Just So.

In moralizing upon the rigid scrutiny to which aspirants for public positions are subjected nowadays, a Western editor well observes: "Probably never before have our *young men* been so thoroughly taught that those who expect to come before the people for preferment, must, from boyhood up, lead honest as well as cleanly lives, in their private as well as public acts; for such contests surely bring forth the most hidden secrets." Fathers cannot be too careful in setting such an example in their daily lives, and in throwing such restraints around their young sons, that they will never be tempted to go astray, whether in public or private life.

Orange County, N. Y., Milk War.

—Mr. Lawson Valentine has just returned home from Europe, and Mr. John S. King, who enjoys a national reputation for large enterprises and great energy, has purchased the famous Huntington Farm, near Pine Island. With two such pushing men, having large means, and being in full sympathy with the Dairy Farmers of Orange County, the latter, under their leadership, should now re-open the war for their rights, and secure from the middle-men all the privileges for which they have been contending these many years.

W*H*Y

The American Agriculturist is better now than ever before.

First :—The *American Agriculturist* has been enlarged and vastly improved in all its various departments. It is now printed on super-calendered tinted paper with a glaze and finish which give clearness and distinctness to the type and illustrations.

Second :—In addition to the old staff of Editors and life-long contributors who have aided in making the Journal what it is to-day, new names have been added to our Editorial force, which will be still further strengthened with fresh acquisitions.

Third :—Joseph Harris, the founder of the "Genesee Farmer," author of "Walks and Talks on the Farm," etc., and whose agricultural writings have made him famous on both continents, has become one of the active Editors of the *American Agriculturist.*

Fourth :—The very note-worthy improvements made in the *American Agriculturist* since June last, embrace a complete transformation in the character of the illustrations. New and talented Artists have been employed, until the engravings and illustrations in the *American Agriculturist* have become, during the past four months, more numerous and far superior to those appearing in any similar publication. The *American Agriculturist* has for years been the recognized authority in all matters pertaining to agriculture ; it has now, this year, become the first **Illustrated** Agricultural Journal of the world.

Fifth :—New methods and new agents for mailing have been employed, so that the *American Agriculturist* leaves the office as regularly as clock-work, and if any number fails to reach the subscriber, our new plan for discovery immediately makes known the cause.

Sixth :—The premium articles offered this year have been selected conjointly by the Editors and Publishers, to specially meet the wants of our great army of subscribers. While the list comprises very many new articles, those which have proved specially popular and desirable in the past are retained ; all of them have been secured at great bargains, of which our subscribers get the benefit.

Seventh :—Every subscriber to the *American Agriculturist*, new or old, whose subscription for 1885 is forwarded immediately to us, together with $1.65, is entitled to the **New American Agriculturist Family Cyclopædia,** 700 pages, 1,000 illustrations.

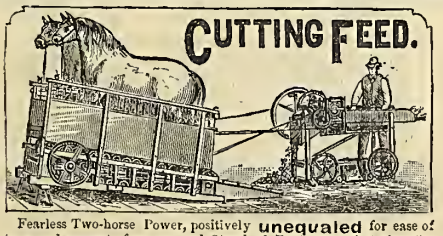
Good Guns.—Our Premium List presents a variety of excellent Guns at very moderate prices. If you want a repeating rifle, there is one in our advertising columns, page 558, which is worth the money asked for it, that is $12.00. Any repeating rifle which works well, ought to be worth that money.

EVERY DAY IN THE COUNTRY.

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A USEFUL, SEASONABLE, AND ARTISTIC PRESENT.

This exquisite, 16mo. volume, has on one page space for daily memoranda, and on the opposite page, is a reference to some flower, bird, insect, or other natural feature likely to be met with at the season, with numerous engravings of these objects. There are besides, a number of full-page colored pictures. The author is well-known as an artist, for his delineation of rural subjects, and as a pleasant writer about them. This work is a tasteful specimen of book-making, and would be an acceptable present for any one, young or old. Sent, postpaid, for $1.00.



Fearless Two-horse Power, positively **unequaled** for ease of team and amount of power, and Standard Feed-cutter that gives the most **unbounded** satisfaction. Cutting feed saves money. Economy says **try it.** Fearless Threshers and Cleaners, Clover-hullers, Wood Circular-saw Machines and Fanning-mills, not excelled by any. Buy the best. Catalogue sent free. Address,
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GARDEN SEEDS.

Catalogue for 1885, with Directions for Cultivation, mailed FREE. Please write for it. Address,
JOSEPH HARRIS,
Moreton Farm, Rochester, N. Y.
☞I particularly want the Boys and Girls to send for it.

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AND OTHERS, AS TO THE

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The **REV. DR. C. H. GARDNER,** Principal of the celebrated Fifth Avenue Seminary for Young Ladies, N. Y. City, says: "I speak from grateful experience of its remarkable powers."

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Every Christmas we make the little folks a Christmas Present. This year we have something nice and pretty. To introduce our goods in every home we will send to any boy or girl **free of charge,** if you will send 20c. for postage, &c., **3 pretty Dolls** with beautiful life-like features, pretty curls and blue eyes or bangs and dark eyes, and wardrobe of 22 Dresses, Hats, &c; one elegant gilt-bound floral Autograph Album illustrated with birds, ferns, scrolls, &c., five lovely Christmas Cards, one pretty Birthday Card and a 50p. Illustrated Holiday Book. ACME MFG. CO., Ivoryton, Conn.





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PRESSES, TYPE, CHROMO CARDS, Scrap Pictures, &c. Send for price lists. E. C. DUNN & CO., 2106 Orkney St., Philadelphia, Pa.

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I particularly want the Boys and Girls to send for it.

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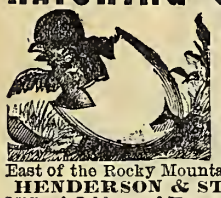
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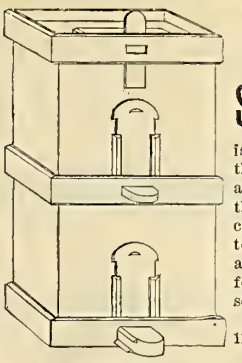
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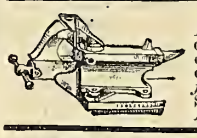
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Anvil, Vise with adjustable jaw and cut-off tool. If your hardware dealer does not keep them, we will send either size, $4.50, $5.50, or $6.50, *freight paid*, on receipt of price. Send stamp for circulars. CHENEY ANVIL & VISE CO., Detroit, Mich.

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To introduce our goods and secure future trade, we will send you (free of charge) if you will send 20 cts. in stamps for postage, &c., 5 pretty Christmas Cards, 5 nice New Year Cards, 5 lovely Birthday Cards a beautiful Gilt Bound Floral Autograph Album illustrated with birds, flowers, ferns, &c., a handsome Photographic Album of all the Presidents of the U.S. with autograph signature of each, also our new illustrated holiday book. U. S. MFG. CO., Hartford, Conn.

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A choice assortment of all the new and standard varieties at popular prices. **Fall is by far the best time to plant.** Catalogue free. Address,
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Every Christmas we make the little folks a Christmas present. This year we have something nice and pretty. To introduce our goods in every home we will send to any boy or girl **free** of charge, if you will send 20c. for postage, &c., **3 Pretty Dolls** with beautiful life-like features, one little boy and two girl dolls with a complete wardrobe of 32 pieces, dresses, hats, cloaks, &c., one elegant gilt-bound floral Autograph Album illustrated with birds, ferns, scrolls, &c., 5 lovely Christmas Cards, one pretty Birthday Card and a 50p. Holiday Book. A. L. BLACK & CO., Centerbrook, Conn.

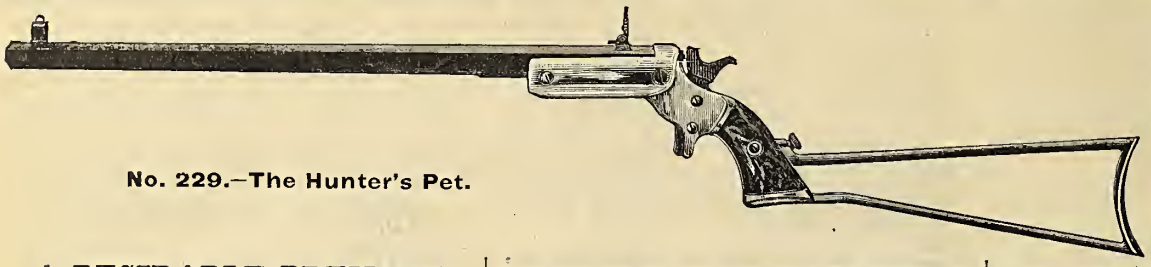


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SUPPLEMENTAL PREMIUMS.

The numbers running on from 228 on the regular List. (See Premium List, or October Supplement.)



No. 229.—The Hunter's Pet.

A DESIRABLE PREMIUM

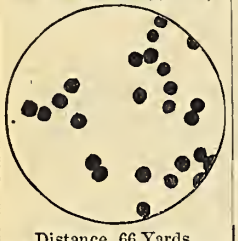
—FOR—

COUNTRY OR TOWN.

Sixteen years ago the *American Agriculturist* afforded a great deal of pleasure and satisfaction to its readers in every section of the country, in directing their attention to a remarkable little fire-arm called the Breech-loading Pocket Rifle, it weighed only eleven ounces, and shot with great accuracy and power from ten to one hundred yards, could be loaded and fired five times a minute, and could be carried in a side-pocket while working in the fields, ready to bring down game on short notice. It was exceedingly convenient in new countries as a defensive weapon, and useful generally on the farm. Mr. Judd used this gun with great success and pleasure. Now, after a lapse of sixteen years, when rifles of all makes and patterns have been introduced in all lands, we reproduce as a premium this Rifle, **which has been enlarged and greatly improved,** because we consider it (the Hunter's Pet), as we then did sixteen years ago, the best thing of the kind in the world.

The barrel of this Rifle is made of the finest quality, decarbonized steel, and each barrel is thoroughly tested at the factory before it is sent out, thereby guaranteeing absolute safety. The action, although perfectly simple, both in its construction and working, is one of the most reliable, as well as durable actions now in use. The stock is heavily nickel-plated and handsomely finished, and has an extension skeleton breech, nickel-plated, which can be instantaneously either screwed on, (or taken off), thereby enabling one to steady the piece while firing; when not in use, it can be easily carried in a side pocket. For accuracy, penetration, and wear, this little Rifle is equal to many of the best and most popular makes now in the market.

(From the *American Agriculturist*, January, 1869.)



Distance, 66 Yards. Twenty-five successive shots, fired Dec. 5, 1868, by David W. Judd.

One of the strong points of this remarkable fire-arm, is its simplicity, both of construction, and action; it requires no special instructions to manage it, in fact any one can at once use it, and if at all accurate in aim, can make most excellent targets. For small game shooting, or gallery practice, it is equally well adapted.

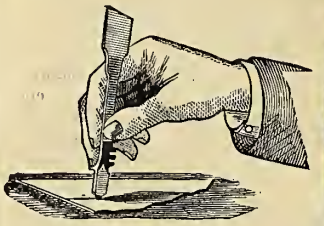
This rifle can be had in 22, 32, 38, or 44 calibre, Rim Fire, or 32, 38, or 44 calibre Central Fire, with combined sights. 18-inch. Price $18.00. **20** subscriptions at $1.50 each, will secure this elegant premium; OR, we will send it, pre-paid, on receipt of price.

No. 230.—The Famous Flobert Parlor Target Rifle.—Price $4.50.—The famous Flobert Rifle, while used for target practice at the same time, is a most desirable and useful weapon for destroying small birds, and for driving away annoying animals, without killing them—cats for example. One of the managers of the *American Agriculturist* was for months unable to sleep, owing to the ceaseless quarreling of cats in the back yard. He procured one of these Flobert's, and after a few evenings peace reigned in the vicinity. None of the cats were killed, but they were all sufficiently tickled with the Flobert sensation, as to abandon that neighborhood. Everybody in the vicinity has expressed gratitude to the gentleman, who has through means of the Flobert insured tranquility after nightfall. The Flobert is a breech-loader, causes little or no noise, uses either a ball, or a small load of shot. The barrel, which is a breech-loader, is solid, and can be used with perfect safety. Indeed, the one employed by the gentleman alluded to above, caused little or no noise, and the only evidences of the discharge to lookers-on, was afforded in the rapid disappearance of the cats. We know of no weapon which affords more pleasure for target practice, at short range, or which so quietly and successfully clears one yard, or a neighborhood of cats or dogs, if necessary, without inflicting any serious injury upon them; that is, when you use the small shot. The ball, of course, penetrates the body of the cat, dog, or any other animal, with the natural results which follow penetration, of cold lead as a solid. Is there a farm house in the country, or a dwelling in the village, which is not at some time more or less infested after dark with strange cats or dogs; herein lies deliverance. **6** subscriptions, at $1.50 each, will secure this premium; OR, we will send it on receipt of price. Receiver to pay small expressage.

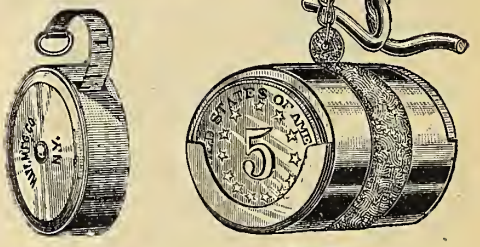
No. 231.—The Semi-Hammerless Gun.—Price $15.00.—A new model, combining all the advantages of the hammerless action without the danger of the self-cocking principle. The barrel is of genuine twist, is thoroughly tested at the factory, and is perfectly safe. It has the reliable and durable top-lever action, rebounding lock, snap fore-end, nickel frame, and is choke-bored. The stock is of selected Italian walnut, finely polished and oiled, (13¾ inches long, 3-inch drop), with pistol grip, checkered. 12-bore, and 28 or 30-inch barrels. Weight about 7 lbs. **20** subscriptions at $1.50 each will secure this premium; OR, we will send it for the price. Receiver to pay small expressage.

No. 232.—Cartridge Bag.—Price $1.25.—A most useful article for hunters, sportsmen, and persons in the country generally. It is made of strong waterproof brown canvass, with loops inside, from which the loaded shells are taken; discharged shells are kept separately in the bottom of the bag; in a second compartment can be carried a lunch-box, field cleaner, etc., etc. This desirable premium will be furnished free of charge to any one sending us **2** subscriptions at $1.50 each; OR, will be sent, post-paid, on receipt of price.

No. 235.—Automatic Shawl Strap.—Double Handle.—Price 35 cts.—Every lady requires a shawl strap for shopping and travelling; while for school-children they are invaluable in carrying books and lunch to and from school. We offer the best shawl or parcel carrier made, with blue straps and ebonized handles, for **1** subscriber at $1.50; OR, supply it for the price, post-paid.



No. 236.



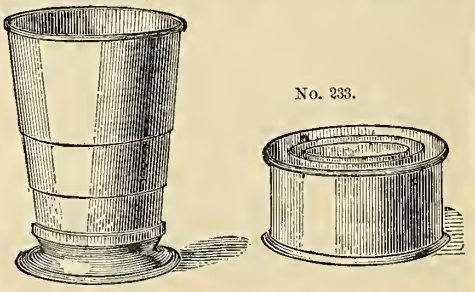
No. 236. No. 236.

No. 236.—Another Valuable Combination Gift.—A Bonanza Charity Box, or Money Holder, a nickel-plated Tape Measure, and a Universal Glass Cutter. For one subscription—The money holder is a dainty little ornament, worn attached to a lady's waist, and is designed for carrying five-cent nickels, and ten-cent silver pieces. Will be found very convenient for car-fare and church money. The tape-measure is a gem of the day, and can be enjoyed at all seasons. Nothing in years has so taken with both old and young. These skates which we offer are the best of the kind, possessing many advantages over the old make. They have four wheels, and come in nine sizes, from 7 to 11 inches. These beautiful Skates will be sent as a premium for **2** new subscribers; OR, supplied post-paid for the price.

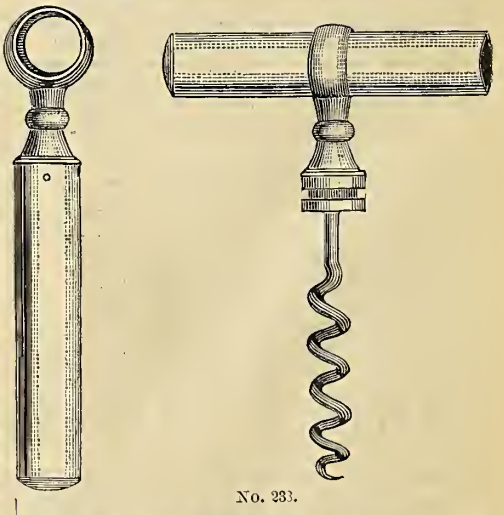


No. 233.

No. 233.—Pocket Drinking Cup, Corkscrew, and Pencil.—For one subscription.—The first two will be found a great convenience to tourists, and picnic parties. A tin case goes with the cup, in which it can be kept when not in use, and the corkscrew also is enclosed in a nickel case. The pen is a stylographic, or reservoir pen, which, when once filled with ink, will write several days without refilling. Can be carried in the pocket, and is always ready for use. A valuable gift for any one, at one-sixth the price of any other. Supplied, post-paid, for **1** subscription at $1.50, and ten cents for mailing. Here are three excellent Premiums for one subscriber.



No. 233.



No. 233.

No. 234.—Improved Roller Skates.—Price $1.25.—Roller Skating is the favorite amusement in its way, and should be in every household. The glazing tool, for cutting and setting glass, will cut equal to and is better than a diamond for ordinary purposes. **Presented** for **1** subscription at $1.50, and ten cents extra for mailing; OR, supplied post-paid for price.

NO SUBSCRIPTION CAN COUNT TOWARDS MORE THAN ONE PREMIUM IN ANY CASE.

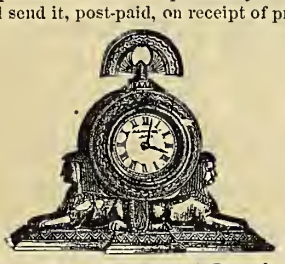


No. 237.—The Novelty Pocket Scale.—Price 50 cents.—Every farmer and merchant should own one of these Pocket Scales. A triumph of modern ingenuity. A universal want filled at last. It can be carried in the pocket and weighs with accuracy from 2 ounces up to 15 pounds. It is heavily nickel-plated, and will last a life time. Given for **1** new subscription; OR, supplied, post-paid, for price.

No. 238.—Ring Toss for Parlor or Field.—Price $1.25.—This charming game may be played either in the house or on the lawn. There are five rings of various sizes, made of rattan, and wound with gay-colored webbing, that present a beautiful appearance, at the same time being perfectly harmless to wall or furniture. The game is, to throw these hoops over a standard, or target post, at a given distance. They come put up neatly in a wooden box. A healthful and fascinating amusement for winter evenings. Supplied for **2** subscriptions at $1.50 each; OR, furnished for price, post-paid.

No. 239.—An Entirely New Bulls' Eye Lantern.—Price $1.50.—Made of the finest quality of Brass, elegantly polished and finished with a heavy convex glass lens, that causes it to throw a powerful light a long distance. It is so compactly made that it can be easily fastened to either hat or belt, or is easily carried by hand. In the country, as well as in villages and smaller towns where Electric lights and Gas are not in use, this Lantern will be found a most cheerful companion to the evening church meetings, spelling-schools, visiting nights, or other necessary or desirable journeys to and from your home. For Riding, Hunting, Fishing, or for use in and about the House, Barns, Stables, or outbuildings, it is invaluable. In beauty of design and construction, as well as safety and durability, there is no other Lantern of the kind that compares with this. We take especial pleasure in recommending this elegant and useful article to our readers, and at the exceedingly low price at which it is offered, we feel satisfied that it will meet with a large demand and prove exceedingly valuable and satisfactory. *Only* **2** subscriptions at $1.50 each are required to secure this premium *free* of charge; OR, we will send it, post-paid, on receipt of price.



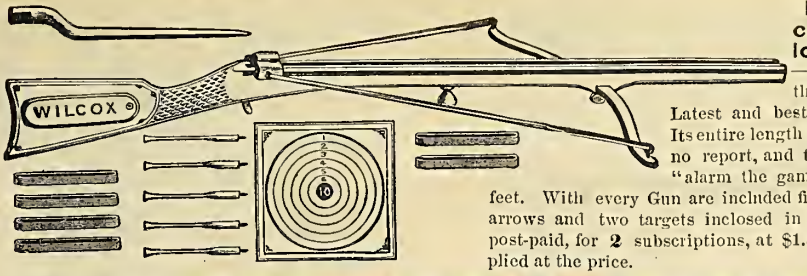


No. 240.—The Oriental Clock.—Price $3.—This exquisite little time-piece will be the delight of all who see it. It is 3½ inches high, and of Bronze or Oxidize finish. It is Egyptian in design, two Sphynx-like figures being the supports. **Presented,** post-paid, for **4** subscriptions at $1.50 each; OR, supplied for the price.

No. 241.—The Little Jewel.—Price $1.75.—This dainty *bijou*, is a small clock of simpler finish than the Oriental, but almost as desirable. It is four inches in hight. One Day Pendulum. Nickel-finish. Sent enclosed in case, post-paid, for **3** subscriptions at $1.50 each; OR, on receipt of price.



No. 242.—The New Choral Top.—Price 50 cts.—This mechanical top is spun in the same manner as other singing-tops, but has the advantage of an Indian-rubber shoe so it can play on the finest table without danger of spoiling the varnished surface. The Top is painted in gay colors, and dances in such a quiet way, that every sound of the choral is clearly heard. The Top changes by itself the accord, if not, you touch slowly the upper point, and immediately the accord changes into another choral. **Presented** for **1** subscription at $1.50; OR, sent post-paid on receipt of price.

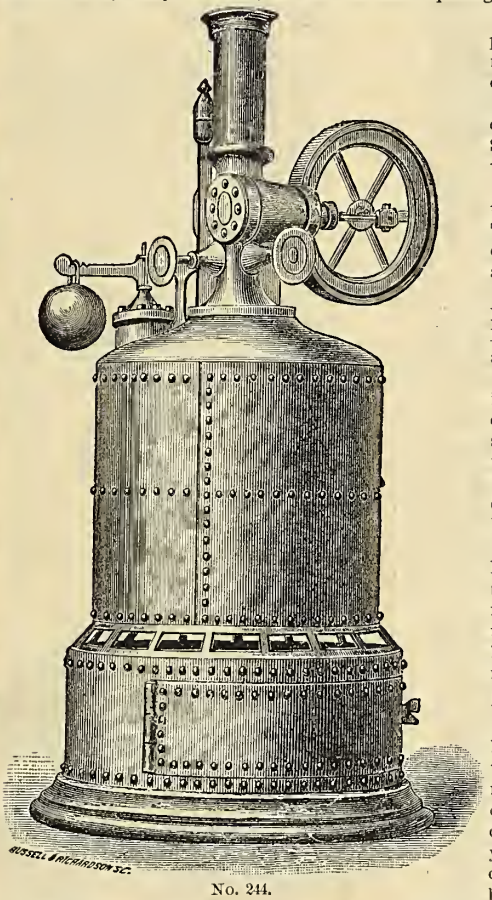


No. 243.—Wilcox Breech-loading Gun.—Price $1.30.—Just the thing for boys. Latest and best Gun of this kind. Its entire length is 39 inches. Makes no report, and therefore does not "alarm the game." Will carry 600 feet. With every Gun are included five metallic-pointed arrows and two targets inclosed in the breech. Sent post-paid, for **2** subscriptions, at $1.50 each; OR, supplied at the price.

OUR NEW AND GREAT PREMIUM for BOYS.

THE WEEDEN UPRIGHT STEAM ENGINE.

For years we have been endeavoring to procure a small machine, worked by steam power, which should not only be safe and reliable, but should perform all the necessary labor which juveniles desire to secure from steam power, in the way of amusement and diversion. We at last have this machine in The Weeden Upright Steam Engine, which affords abundant steam power for running toy machinery. The engraving, while it gives some idea of this most beautiful miniature engine, does not convey to the eye anything like the full description as to its size and power. It is double the size of the illustration, being 8½x4¼ inches. Indeed, no Engine with the capacity and power of this Weeden has before been sold at less than $6.00. The boiler, fire-box, and smoke-stack are painted black; the cylinder, safety-valve, steam-whistle, pulley wheel, and the driving-wheel are all of them brass plated. The throttle-valve, top of smoke-stack, steam-whistle valve, safety-valve ball, and the ventilated openings are painted red.



No. 244.

Safety-Valve.—The Engine has a perfect working Safety-Valve, which makes it impossible for the boiler to explode.

Steam Whistle.—By referring to the cut you will notice the location of the Steam Whistle. You will also see the valve by which the whistle is operated.

The Throttle-Valve.—One very important feature of this Engine is its Throttle-Valve, by means of which the engine is started and stopped. No other amateur Engine has this feature.

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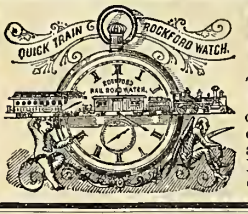
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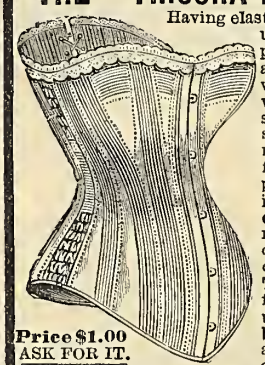
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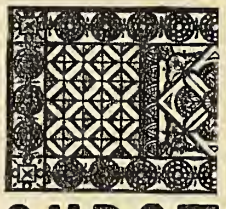
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